IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,	)
Plaintiff,	)
vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,	)
Defendants.	)

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VOLUME I OF THE VIDEOTAPED

30(b)(6) DEPOSITION OF TIM ALSUP, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 24th day of June, 2008, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

laying eggs, yes, sir, Cargill contracts with independent contractors for that.

Q And so when I'm saying breeder, then they're raising a bird that's laying eggs or feeding of birds -- I'm sorry. Are they feeding birds that are laying eggs or are they feeding the birds prior to being able to lay eggs? 10:40AM

A Prior to.

Q Okay. Is that facility called the breeder facility? 10:40AM

A I'm familiar with it as a preproduction facility.

Q Thank you. I'm just trying to get the term that you know so we're talking about the same thing.

A Okay. 10:40AM

Q Preproduction facilities, then Cargill has contract growers that operate those in the past; correct?

A Yes, sir.

Q Does Cargill, LLC, today have contract growers that operate preproduction facilities in the IRW? 10:40AM

A Yes, sir.

Q All right, but in the IRW today for the LLC the laying facilities are owned and operated by Cargill, LLC; correct? 10:41AM

A Yes, sir.
Q And those same facilities, I believe there was six farms; correct?
A Yes, sir.
Q Those six farms were previously owned by Cargill, Inc., and operated the same way that they are today? 10:41AM
A Yes, sir.
Q Okay. So when a flock supervisor would be using these minimum housekeeping standards and do their inspection, they are inspecting the Cargill-owned and operated facilities? 10:41AM
A Yes, sir.
Q Okay. Are you familiar with an entity called Ag Forte? 10:42AM
A Yes, sir.
Q Tell the court what Ag Forte is in relation to Cargill and its growing facilities.
A In -- there was roughly a two and a half period -- two and a half year period of time where Cargill and I think it was Willmar Poultry, and I don't know what Rick VanderSpek, he may or may not have been a part owner, but they started a -- another company that was just dealing with breeders. 10:42AM
MR. GARREN: Okay, and I know I think 10:42AM

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Plaintiff,	)
vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,	)
Defendants.	)

- -

THE VIDEOTAPED DEPOSITION OF DAN HENDERSON, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 5th day of June, 2008, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

litter would also include dead birds or parts of dead birds?
A Yes, I've seen that.
Q When -- were you ever involved in the process of talking with people who might wish to become a Peterson grower? 09:26AM
A I don't believe so.
Q Did the company promote the use of litter as a fertilizer while you were there?
A No. 09:27AM
Q Was it the practice, though, within your growers at that time to land apply the poultry litter?
MS. LONGWELL: Object to form.
A I can't speak to all the growers. I can speak to my dad's. Yes, we land applied the litter. 09:27AM
Q Well, just from your experience within the company, was that not the predominant practice?
MS. LONGWELL: Object to form.
A There was quite a few growers that didn't have enough acreage to do that and do it right, so they would sell their litter to neighboring farms and so forth that did have acreage to use litter. 09:27AM
Q And then it would be land applied?
A Yes. 09:28AM

Q That was the general practice; there might be an exception or two?
A Sure.
Q Let me see if I can get the dates down during which you were COO. Was it -- you left that position in 2000; is that correct? 09:28AM
A Yes.
Q And how many years did you have the position?
A I think about three. I'm not real sure.
Q By the way, what prompted you to leave the position? 09:28AM
A As Mr. Peterson aged, he got more and more and more difficult to work for, and it got harder and harder to get things done that the company needed to do to survive in my opinion, and I finally came to the realization that he or I one needed to leave, and he had all the stock so he wasn't going to, so I did. 09:28AM
Q It was a voluntary parting, though?
A Yes, it was. 09:29AM
Q So you were COO, if I understood right, from about '97 to 2000?
A Approximately.
Q About three years, okay. During that time did Peterson take any steps to ensure that litter was 09:29AM

recall that?
A Yeah.
Q When you heard those claims being made, did you make any investigation as to whether similar things might be happening in the Illinois River watershed? 09:43AM
A Not that I recall, no.
Q Now, you said that there were some meetings amongst some of the company officers concerning these environmental issues. Did you have any meetings with executives of other companies concerning these issues? 09:43AM
A I imagine they were discussed at the Poultry Federation meetings, but I don't specifically recall. 09:43AM
Q And did you attend the Poultry Federation meetings?
A I did. For a period of time I was on the board.
Q During what period of time were you on the board? 09:44AM
A I think that was early '90's, late '80's, early '90's, maybe mid '90's even.
Q At that point was this the Arkansas Poultry Federation? 09:44AM

A Yes, and they did some work in Oklahoma and Missouri, too.
Q Did the Federation make any effort to determine whether poultry litter was contributing to water quality problems in the region? 09:44AM
A I do not recall.
Q By the way, did you also belong to the National Chicken Council?
A Yes, we did.
Q Did you attend any of their meetings? 09:45AM
A I think I was only at one that I recall.
Q When would that have been?
A I have no clue. Someone else was absent and I went in their place.
Q What about the -- is it the National Egg & Poultry Association; is that the name of it? 09:45AM
A USEPA?
Q Yeah.
A I do not remember if we were a member of that or not. 09:45AM
Q Okay. Did you ever attend any meetings?
A Seems like I may have gone to one some time. I remember meeting the fellow that runs that at some function but I can't remember if it was a meeting or what. 09:45AM

Q How about the National Poultry Waste Symposium?
A I didn't ever go to that I don't believe.
Q Did you ever get their materials?
A Probably so. I couldn't specifically say but I would imagine. 09:46AM
Q When you or someone else would attend a national meeting, would -- was part of the task would be to prepare some type of memo concerning the meeting and circulate it? 09:46AM
MR. GRAVES: Object to the form.
A That wasn't our routine practice I don't think. We were a small enough company that usually if someone attended, they'd come by and sit down and discuss what they learned. 09:47AM
Q You mentioned Mr. Mullikin. What period of time was he employed by the company?
A I could not tell you.
Q But was he there -- do you remember him leaving the company while you were COO? 09:47AM
A I don't recall if he was still there when I left or not.
Q He did report to you; is that correct?
A I believe he reported to Janet Wilkerson, who reported to me. 09:47AM

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

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Plaintiffs,	)	
vs.	)	4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al.,	)	
Defendants.	)	

VIDEOTAPED DEPOSITION OF KIRK HOUTCHENS

Taken at the law offices of Mitchell, Williams, Selig, Gates & Wooyard, 5414 Pinnacle Point Drive, Suite 500, Rogers, Arkansas 72758, on July 26, 2007, at 11:36 a.m.

contaminants in the animal waste (the unused nutrients, bacteria or other elements in the litter) are released to surface drainage or infiltrate beneath the soil surface in groundwater recharge areas."

Do you agree with that statement?

MR. McDANIEL: It's not a designated topic for this witness, plus he's told you he's not familiar with the document. We're not answering that question.

Q. (Mr. Riggs continued.) Are you not going to answer that question?

A. Yes.

Q. Did you know that bacteria are contained in poultry manure?

A. Yes.

Q. For how long have you known that?

A. Never thought of that. I just really don't know.

Q. Do you know if the company is aware that bacteria are contained in poultry manure?

A. I assume we do, yes.

Q. Do you know how long the company's known bacteria are contained in poultry manure?

A. No, sir. I do not know.

Q. Do you know that these bacteria can run off the land during rainfall, along with other constituents of poultry waste which has been spread on the land?

technically trained in soil scientists, that kind of thing. It would be speculation --

Q. (Mr. Riggs continued.) Okay.

A. -- on my part.

Q. Does anyone in the company know more than you do about the -- the application of poultry waste to -- to pasture land in a safe way?

MR. McDANIEL: Object to the form.

A. No, there isn't.

Q. (Mr. Riggs continued.) In your experience, would you agree that farmers are encouraged to apply poultry waste to pasture lands for its nitrogen need even though those soils would have no need for more phosphorus?

MR. McDANIEL: Object to the form.

A. No. We don't. Our -- our growers are using their nutrient management plans, and those are written based on phosphorus index -- indexes.

Q. (Mr. Riggs continued.) Before your nutrient management plans, would you say it's been true historically for farmers to apply poultry waste for nitrogen needs rather than -- or even though there were no phosphorus needs in that soil?

MR. McDANIEL: Object to the form.

A. You know, it was -- your know, our plan's written by both states were written based on nitrogen.

Q. (Mr. Riggs continued.) I'm referring to the period of time when Peterson was in the poultry business before either state adopted nutrient management plan regulations. Was it typically true of farmers to apply poultry waste for nitrogen needs without regard to phosphorus needs?

MR. McDANIEL: Object to the form.

A. Like I said earlier, David, the growers applied poultry litter to their pasture land, and it would be more on the nitrogen needs.

Q. (Mr. Riggs continued.) Okay.

A. Because at the time we weren't -- we weren't using the phosphorus on this.

Q. In fact, wasn't that one of the reasons it became necessary to have nutrient management plans, because there were so many people applying poultry waste for the nitrogen needs without regard to the phosphorus buildup in the soil?

MR. McDANIEL: Object to the form. I don't see where you've asked Peterson Farm to take a position on when nutrient management plans came into existence.

Q. (Mr. Riggs continued.) Do you have an opinion about that?

MR. McDANIEL: He can answer it personally but not as a representative of Peterson Farms, if he knows.

MR. McDANIEL: And I told you Miss Wilkerson is prepared to talk about this ad.

MR. RIGGS: Okay.

Q. (Mr. Riggs continued.) Bullet point No. 4 says another part of the proposal to improve the management of poultry-related nutrients in the eastern Oklahoma Scenic River Watersheds would be to implement other alternatives for litter management such as turning it into fuel, composting it for export, and processing it into an organic fertilizer.

How would that improve the watershed?

MR. McDANIEL: Object to the form.

A. Well, I think it just goes back to the third bullet point, we were just -- Peterson Farms is coming up or is endorsing ways to have less amount of poultry litter spread or land applied.

Q. (Mr. Riggs continued.) Okay. So how would that help the scenic river watershed if less poultry litter were applied in it?

MR. McDANIEL: Object to the form.

A. Personally, I don't think it will help. It would -- if litter's being applied by our contract growers by what the state law allows, whether it's Oklahoma or Arkansas, there shouldn't be any pollution.

Q. (Mr. Riggs continued.) So are you in disagreement

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vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al, Defendants.	)

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THE VIDEOTAPED DEPOSITION OF KERRY KINYON, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 4th day of June, 2008, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

this exhibit, since he's not -- he's indicated he's not familiar with it, that you allow him at least to review it real quick.

Q Take your time and read it, Mr. Mullikin (sic), because I do have a few more questions. 09:55AM

A Mr. Kinyon.

MR. ELROD: You just wish it was Mr. Mullikin.

MR. BULLOCK: I mean Mr. Kinyon.

A Okay. 09:55AM

Q Okay. Looking at the next to the last paragraph there on the second page of it, Mr. Mullikin writes, Dan, I feel the direction Peterson Farms and all integrators would be best served to focus its resources towards would be alternative 09:56AM uses; do you see that?

A Yes, sir.

Q When you were either COO or the vice-president of operations for Peterson Farms, was there any effort made to find alternative uses for litter? 09:56AM

A Yes. We did look into a composting facility.

Q Why did you do that?

A Why did we do that?

Q Yeah.

A Well, as an alternative use, you know, like I 09:56AM

said, if the litter cannot be applied legally, then that litter is either stored or taken somewhere where it could be, but we were looking, you know, at a good way to, you know, deal with excess litter that could not be applied rather than storing it. 09:57AM

Q Rather than what?

A Storing it.

Q Did you have an understanding as to why there was a limit as to how much litter could be applied?

A I don't have a real technical mind, but there, again, I'm sure it has to do with the certain nutrients that go into the land. 09:57AM

Q And --

A Just like commercial fertilizer. I know you can only apply X amount. 09:57AM

Q Because?

A The land will only take certain amounts of nutrients.

Q And are there any effects of that as you understand it? 09:58AM

A I don't think I had the technical knowledge to answer that.

Q Well, I'm not asking a technical question here. I'm just asking what is your understanding -- what was your understanding as to the possible 09:58AM

the growers would commit their litter to be composted?
A Yes.
Q Do you see that?
A Yes. 03:02PM
Q And then it goes on down and says, assuming this is a fair sample of how all our growers would respond, we would have 48,000 tons of litter committed available for use. These growers would give the litter away if someone would remove it from 03:02PM the farms. Do you see that?
A Yes, sir.
Q Does that not suggest to you that your statement that litter is valueful is not universally held? 03:03PM
MS. LONGWELL: Object to form.
A Well, it goes back to I guess what I learned in grade school. It's an ever-changing world and, you know, I think when I was -- over the years with the company and on up, it was a valuable commodity, 03:03PM and -- but, like I said, you do have different types of growers out there now that are not choosing to farm cattle or grow hay or anything like that. They're just choosing to grow chickens and there, again, I can't answer for those growers, but I have 03:03PM

always known it to be a valuable commodity.
Q 54 percent -- it was your conclusion, the company's conclusion that 54 percent of your growers would just give it away if somebody would pay to haul it off; correct? 03:04PM
MS. LONGWELL: Object to the form. Sorry.
A That's what it says, correct.
Q Do you have any opinion as to what would prompt growers to just give away the litter?
A Well, if they have no personal need for it, that might be their best way out. 03:04PM
Q Best way out of what?
A Less cost.
Q Kinyon Deposition Exhibit 40, which is Bates numbered PFIRWE 0004715. Do you recognize that? 03:05PM
A Maybe vaguely.
Q Do you recall -- this is October 10th, 2006, and you were the person, the final person that LeNarz addressed this to?
A That's what it appears, yes. 03:06PM
Q And this is about the -- Jim Whitt. I think we spoke about him earlier; was that Jim Whitt? Maybe not, but Jim Whitt and his associates who have some alternatives for litter; is that correct?
A Yes. 03:06PM

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vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al, Defendants.	)

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THE VIDEOTAPED 30(b)(6)

DEPOSITION OF BENNY McCLURE, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 15th day of August, 2007, in the City of Fayetteville, County of Washington, State of Arkansas, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

poultry litter contains P205.
Q Okay. Now, George's has growing operations within the IRW?
MR. GRAVES: Object to the form and the terminology of poultry growing operations. 10:16AM
Q Do you understand what I mean by growing operations of George's? Let me rephrase it so that we're real clear. George's owns or manages growing facilities within the IRW and has for several years; correct? 10:17AM
A Correct.
Q Does it produce poultry waste or manure, any one of those?
MR. GRAVES: Object to the form.
A It produces manure. 10:17AM
Q And does that manure get spread on the land when it's removed from the poultry barn?
A Land located where?
Q In the Illinois River watershed.
A All of the broiler litter that has been produced out of George's-managed broiler farms for the last several years has been exported out of the watershed. 10:17AM
Q Tell me when that started.
A That started approximately four and a half to 10:17AM

MR. GRAVES: These are different than the ones we looked at when we were off the Record or are these the same thing?

MR. GARREN: Oh, I'm sorry. Did he not look at all three sets? He should have. 01:24PM

MR. GRAVES: I think he just saw Exhibit 20.

A No. I did see them all. I just kind of got confused on what stacks we were looking at.

Q Are these pullet grower agreements used by George's in the time frame based upon the date of the contract? 01:25PM

A Yes.

Q Do you know how early the first version that we're looking at as the first contract -- it's actually dated November of '87. Do you know when that contract was first used by George's? 01:25PM

A No, I don't know exactly when that contract was put in. It may well have been then or it could have existed for a year or two prior to that. 01:25PM

Q Who is C. L. George & Son listed in this agreement as the grower?

A C. L. George & Sons is one of the LLC's that owns some of the farms that we manage corporately.

Q Is there a person named C. L. George? 01:26PM

A Well, the name C. L. George, that was -- that was Gene George's father. That was the founder of the company.

Q But that is an LLC is what you're telling me as it pertains to this contract? 01:26PM

A Yes, sir.

Q Let's then go to the next stack of contracts. It's No. 22. These appear to be hatching egg production agreements and lease agreements. Can you describe for the court, please, what is the 01:27PM procedure used by George's that causes you to use a hatching egg production and lease contract?

MR. GRAVES: Object to the form of the question.

Q Can you explain procedurally how that 01:27PM operates, what George's does, what the grower does and who they are?

MR. GRAVES: Object to the form and the compound nature.

A Okay. This hatching egg production and lease 01:28PM contract, George's -- one of the -- one of the entities that owns the farms that we manage corporately --

Q Can you tell me what that entity is?

A That's why I was thinking. I really don't 01:29PM

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vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al, Defendants.	)

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THE VIDEOTAPED DEPOSITION OF RONALD MULLIKIN, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 14th day of November, 2007, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

Q What was your initial position with the company and what duties did that position entail?
A I originally was hired by Peterson Farms to be their director of corporate training. We had trainers at the plant. We had trainers in the hatcheries and other areas of the company that I would supervise those people and get involved with other training, things that were needed throughout the company, other exercises. 02:14PM
Q Did your duties change during the period of time you worked for Peterson? 02:14PM
A Yes, they did. I had been there probably about, I don't know, three or four months and was asked to attend a meeting at Simmons Foods in Siloam Springs with Janet Wilkerson. Janet came to know me a little better and understand that I had worked with my father in a number of other companies in a fertilizer business in Iowa, and because I knew a little bit about fertilizer and crop production, she thought maybe I could go to that meeting and possibly shed some light on what was going on. 02:14PM 02:15PM
Q So did that lead to a change in your duties? I think that's what you were explaining.
A Yeah, it did. Excuse me. After that meeting and a couple of other subsequent meetings, they 02:15PM

asked me to really take the lead in going to the meetings and becoming involved with what was going on between the City of Tulsa, the various state and federal agencies and Peterson Farms.

MR. RIGGS: Excuse me. Did we have somebody else join us by phone? I guess not. 02:15PM

Q Did you acquire a different job title?

A I was known then as the director of corporate training and environmental affairs and then later on was also -- had the title of personnel. 02:16PM

Q Okay. What were your duties at the time you left the company?

A I had those three titles, director of corporate training, director of environmental affairs and director of personnel. 02:16PM

Q Okay. Can you give me a brief summary of your educational background?

A Went to high school, went to just a short time at a community college up in Iowa and then have taken a number of courses, and that's really about it. 02:16PM

Q Okay. You did not obtain a degree from --

A No.

Q -- a higher education?

A No. 02:17PM

watershed we talked about then, if I remember correctly, was the Eucha-Spavinaw. So certainly talking about the effects, the opinions that different people had about the effects, about information that had been collected from various 02:24PM
sources, about possible solutions. We would talk about best practices; we would talk about nutrient management plans; we would talk about alternative uses. It could be any array, and many times, you know, the primary topic for that meeting was 02:25PM
determined by whomever the sponsor was.

Q Okay. You mentioned a couple of times the effects but then I didn't hear what else you meant by that. Can you tell me what you meant by effects?

A There were studies going on that were pointing 02:25PM
the finger as the primary non-source polluter in that watershed being the poultry industry.

Q So, again, can you tell me effects; can you complete that thought when you were saying effects, people were studying or discussing the effects, 02:25PM
effects of what?

A It's my understanding that there were, for instance, algae blooms, that the lake water quality was in question, and so the effect being those things, the effect of water quality whatever and 02:26PM

Q Those early meetings, I think you mentioned --
A I don't remember many of the actual faces that were at those meetings.
Q I'm just trying to establish if some of those meetings you are referring to now did occur in 1997. 02:28PM
A I can't be sure, no.
Q 1998?
A There were numerous meetings then. I started that position, remember, three or four months after I started. 02:29PM
Q Right.
A So --
Q Okay. Mr. Mullikin, have you ever heard of the National Poultry Waste Management Symposium?
A I believe that was one of the national organizations that would meet. 02:29PM
Q Did you attend any of those meetings?
A I believe so.
Q As I understand it, they're held every other year, and they first started in 1988 and continue up to the present. 02:29PM
MR. McDANIEL: Object to the form.
A That may not be the meeting then that I'm thinking of. If that's the one that's held in Atlanta, I never attended it. 02:29PM

the company involved in any efforts to remove poultry waste from any particular watershed?

A Yes.

Q What was that?

A We had set up meetings for our growers trying to educate them on not over applying waste, poultry waste, poultry litter to the various fields to their areas. We had changed what we asked of them as far as the number of times that they cleaned out, how often they cleaned out their buildings. Those were the two that come to mind. 02:33PM 02:34PM

Q Okay. Was the company ever involved in any efforts to reduce the amount of poultry waste being generated in any particular watershed?

A I believe so. 02:34PM

Q What would that be?

A By those same actions, they were trying to reduce the amount of litter once again put on those fields in those watersheds. The fact that I had attended the number of meetings that I had, they allowed me to go to England, for instance, to look at some alternative uses, the fact that we had looked at a number of different alternative uses, whether or not we felt as though those would fit into our business model and, you know, the fact we 02:34PM 02:35PM

Q Why did you feel, again, quoting your own words, without any doubt that the company would be found liable for the litter?

MR. McDANIEL: Object to the form.

A I felt that politically that was a decision that would have been made because of those powers pushing it that way, whether it was the EPA or the City of Tulsa. 03:26PM

Q Next, let me direct your attention to the second page. The next to the last paragraph where you say, Dan, I feel the direction Peterson Farms and all integrators would be best served to focus its resources towards would be alternative uses. Things such as using litter as bedding, feed, fertilizer and fuel are just a few of the uses I've found some information on. Each of these uses has its own set of benefits and shortcomings, but they all address the environmental need to stop applying litter to our local pasture lands. In your position as head of environmental affairs at Peterson Farms, when you wrote that memorandum on March 27th, 1998, why did you say that there was an environmental need to stop applying litter to local pasture lands? 03:27PM 03:27PM

A Because, once again, of the loading of the soils, the lands, the pasture lands of phosphates 03:28PM

and then it getting into the waterways.
Q Did other people at the management level of Peterson Farms agree with you that there was an environmental need to stop applying litter to local pasture lands? 03:28PM
MR. McDANIEL: Object to the form.
A I don't know if they agreed with that paragraph or that sentence.
Q Did they ever express any disagreement with it? 03:28PM
MR. McDANIEL: Object to the form.
A They raised questions and we had discussions, primarily Miss Wilkerson and I, about those things.
Q Did Dan Henderson ever express any disagreement to you with what you stated in this memo to him? 03:28PM
MR. McDANIEL: Object to the form.
A I don't recall that he ever specifically said he agreed or disagreed.
Q Did Vic Evans ever tell you whether he agreed or disagreed with the opinions you put in this memorandum? 03:29PM
MR. McDANIEL: Object to the form.
A I never met with Mr. Evans.
Q Was there any kind of dialogue going on within 03:29PM

Q Were you aware while you were employed by Peterson that the waste produced by its birds contained bacteria?

MR. McDANIEL: Object to the form.

A No. 03:45PM

Q Were you aware that poultry waste contains pathogens?

MR. McDANIEL: Object to the form.

A I would have thought that it did, yes.

Q Okay. Do you know when you first became aware of that? 03:45PM

A Well, my background in agriculture and farming and raising livestock myself, as soon as I knew a little bit about the business, I would have assumed that to be true. 03:45PM

Q Was the subject of pathogens in poultry waste ever part of any discussion you had within the company while you worked there?

A Not that I recall.

Q Are you familiar with something called the poultry water quality handbook? 03:45PM

A I believe so.

Q We've marked it as Exhibit 6 to your deposition. What is your understanding of what the poultry water quality handbook is? 03:46PM

Q Would that include taking responsibility for the waste?

MR. McDANIEL: Object to the form.

A I think the way the political wind was blowing that they were going to be forced to. 04:27PM

Q Let me -- we're about finished. Let me ask you to look back at Exhibit 7 I think it is. Turn to Page 438, if you will. Under the heading environmental concerns on that page, this document, and this is the one produced by the Cooperative 04:28PM Extension Service, University of Arkansas, United States Department of Agriculture and county governments cooperating, the Jim Pigeon document, it says, maintaining the water quality of the state is a challenge that affects all of us. The ultimate 04:28PM concern is to avoid bacterial contamination and excess nutrients in ground and surface water. Poultry producers must handle manure in ways that protect water resources. If improperly managed, poultry manure can become a liability rather than an 04:28PM asset by causing problems in the environment and creating hazards to human and animal health. Do you agree with that statement?

MR. McDANIEL: Object to the form.

A Yes. 04:28PM

IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,	)
Plaintiff,	)
vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,	)
Defendants.	)

- -

THE VIDEOTAPED 30(b)(6)

DEPOSITION OF GARY MURPHY, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 30th day of July, 2007, in the City of Fayetteville, County of Washington, State of Arkansas, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

do to water or people who might consume the water that's heavy in nitrogen or nitrates?

MR. McDANIEL: Object to the form.

A As far as the health side of it, no, sir, I do not. 11:30AM

Q Is there anybody at Simmons who would know or should know what effects nitrates have on water quality?

A Probably Joe Earney, but I would have to assume that if there was evidence to the effect that 11:30AM there was issues with -- health issues, that we would be made known of it, and I haven't been made aware of any.

Q Does Simmons test water that's used to raise its birds? 11:30AM

A We on occasion will test water if it is requested by our grower.

Q And that is the only reason that Simmons would test the water is that the grower has requested it?

A On an individual grower's farm, yes, sir. 11:31AM

Q Okay. How about its company operations; does Simmons test the water that it uses in growing its birds at its company operations?

MR. ELROD: I'm going to object to the form and let me tell you why. I've heard it a couple of 11:31AM

times, and that's the definition of company operations. Rick, I'm not aware that Simmons Foods, Incorporated, to be technical, owns any poultry farms. Now, there may be some, quote, investor, end quote, owned farms that are managed by a Simmons -- 11:31AM

MR. GARREN: I take your objection. I understand what you're talking about, and I probably need to clarify that because I'm familiar with that.

Q We've talked earlier about investor farms. Those investor farms, though not owned specifically 11:32AM by Simmons Foods, Inc., they're owned generally by people who may be employees of Simmons Foods; is that a fair statement?

A Could be, yes.

Q The partnerships that are formed, many of the 11:32AM Simmons employees own interests in those partnerships, is that a fair statement, and I don't mean to say many if the number is bothering you, but certainly employees of Simmons Foods participate as owners in partnerships that own these investor 11:32AM farms; right?

A That's correct.

Q But the investor farms grow poultry for Simmons Foods, do they not?

A That's correct. 11:32AM

Q And does Simmons Foods have employees that would assist in managing those farms?
A Yes, sir.
Q All right. So when I talk about a company farm, I apologize. I mean those that are owned or managed by Simmons Foods. So that would include an investor farm because it's managed; would you agree with that? 11:32AM
A Company-managed farm, yes, sir.
Q So on a company-managed farm, does Simmons treat or test the water that it uses for its raising of birds? 11:33AM
A Some of the farms, yes, sir.
Q Okay. Why some but not all?
A In the particular area that those farms are located, there is a high salt content and we like to monitor that so we can see how that's impacting the performance of the birds. 11:33AM
Q Okay. Is that the only thing that Simmons tests for when that water quality test is made? 11:33AM
A As far as I know, yes, sir.
Q So you're only looking at salt content?
A Yes.
Q Okay. I'm going to hand you now Exhibit 27, Mr. Murphy, and ask you to look at that document. 11:33AM

IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA, Plaintiffs,	)
vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al, Defendants.	)

- -

VOLUME I OF THE DEPOSITION OF W. A. SAUNDERS, produced as a witness on behalf of the Plaintiffs in the above styled and numbered cause, taken on the 23rd day of October, 2006, in the City of West Siloam Springs, County of Delaware, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

looking at this contract, without going through every provision line by line, I'm going to try to make it easier, are there any portions of this contract that you negotiated yourself in order to receive the benefit of? 04:15PM

MR. WILLIAMS: Object to the form.

A The only portion of the contract that we steadfast negotiated -- I mean we talked about a lot of it but as far as negotiating, that was -- I don't think it's even in here -- the arbitration 04:15PM agreement, mandatory arbitration for or against. That part we did negotiate.

Q Is that something you wanted or something you did not want?

A I did not want arbitration. We sat down and 04:15PM negotiated about that. Everything else -- is it a perfect contract, no, but we had the option we could either sign it or not.

Q Okay. Who sets the price that you are to receive? 04:16PM

A Basically we do.

Q And how do you do that?

A When we grow the chicken, we're in competition with the other growers that sell that week. If we have a better feeding version, grow a better 04:16PM

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA PLAINTIFF

VERSUS CASE NO. 4:05-CV-00329 GKF(SAJ)

TYSON FOODS, INC., ET AL. DEFENDANTS

****

VIDEOTAPED 30(B)(6) DEPOSITION OF CAL-MAINE FOODS

(STEVE STORM)

****

APPEARANCES NOTED HEREIN

TAKEN AT INSTANCE OF: PLAINTIFF
DATE: OCTOBER 8, 2007
PLACE: YOUNG WILLIAMS, P.A.
210 E. CAPITOL STREET, STE 2000
JACKSON, MISSISSIPPI
TIME: 1:06 P.M.

REPORTED BY: TODD J. DAVIS
CSR #1406, RPR

WOOTTON REPORTING
338 Indian Gate Circle
Ridgeland, Mississippi 39157
601-898-9990

A. What is it?
Q. Cal-Maine?
A. Cal-Maine hasn't. But...
Q. Okay. Cal-Maine has acquired Benton County Foods, LLC, correct?
A. Benton County Foods, LLC, is -- represents the acquisition of Georges commercial egg division. Cal-Maine is a majority owner in that.
Q. Okay. Who else owns what was the -- is -- does it still go by the name Benton County Foods, LLC?
A. Yes.
Q. Okay.
A. And this was as of about May this year.
Q. Okay. Did it have that name when George's owned it?
A. No.
Q. Okay. So that entity was created by Cal-Maine Foods and some other party or parties?
A. Correct.
Q. The Benton County Foods, LLC? Who are the other parties?
A. I think it's called PW-3, LLC. It's another company that's a party to that.

Q. And Mr. Garren might go into this more deeply, but I wanted to try to get an idea; and I'll leave it.

But how much of Benton County Foods, LLC, does Cal-Maine Farms own?

A. Cal-Maine Foods.

Q. I'm sorry. Foods. I misspoke.

A. Owns -- I believe it's 90 percent at this time.

Q. Okay. Other than the eggs that are being produced as a result of that acquisition and the operation of Benton County Foods, LLC, does Cal-Maine Foods have any other poultry business in the IRW at this time?

A. No, sir.

Q. Are all eggs being produced for Benton County Foods, LLC, today being produced by contract producers?

A. No. None.

Q. None?

All eggs being produced by Benton County, LLC, are in company owned or leased facilities?

A. That's correct.

Q. Are they owned?

A. Yes.
Q. Okay.
A. Specifically, the eggs are produced in owned facilities. The pullets are grown in leased facilities.
Q. Okay. Are all of the eggs being produced for or by Benton County, LLC, being produced on facilities that are in the Illinois River Watershed?
A. Yes.
Q. Are the other leased facilities which are -- did you say breeder facilities?
A. No, sir. Pullet facilities.
Q. Pullet facilities?
Are those in the Illinois River Watershed?
A. About 50/50. Some yes, some no.
Q. Okay. And do you have any other types of facilities -- hatcheries or --
A. No.
Q. No -- no breeding flocks?
A. No.
Q. In the -- as a result of that acquisition?
A. Oh, no.

IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA PLAINTIFF

VERSUS NO. 4:05-CV-00329-GKF-SAJ

TYSON FOODS, INC., ET AL. DEFENDANTS

****

VIDEOTAPED 30(B)(6) DEPOSITION OF CAL-MAINE FOODS
STEVE STORM
VOLUME II

****

APPEARANCES NOTED HEREIN

TAKEN AT INSTANCE OF: PLAINTIFF
DATE: OCTOBER 9, 2007
PLACE: YOUNG WILLIAMS, P.A.
210 E. JCAPITOL STREET, SUITE 2000
JACKSON, MISSISSIPPI
TIME: 9:00 a.m.

REPORTED BY: AMANDA M. WOOTTON, CSR, RPR

WOOTTON REPORTING
338 Indian Gate Circle
Ridgeland, Mississippi 39157
(601) 898-9990

Q All right. Let's start here. The board of directors of Cal-Maine -- Cal-Maine Foods, I believe, is listed in the annual report at, I believe, Page 59.

A Okay.

Q Can you tell me from that list on Page 59 which of those people are on the board of directors of Cal-Maine Farms, Inc.?

A You know, Cal-Maine Farms is -- is 100 percent owned. It does -- it's not separate assets, and I think it's the same officers.

Q Okay. The entity Benton County Foods, LLC, you testified yesterday that it's -- in this report shows that Cal-Maine Foods owns 90 percent of it. I believe you testified that the other ten percent is owned by a company called PW3; is that --

A I believe that's the name of it.

Q We'll talk about that later in more detail, but let me ask you this: Who are the principal members, officers or managing personnel in Benton County Foods?

A You know, the members are Cal-Maine and PW3.

Q Correct.

A And they comprise -- I think there's -- there's a board that's comprised from those two companies, and then I am the operational manager of the company.

Q Do you draw a salary from Benton County Foods?

A I do not.

Q You're -- you're solely paid by Cal-Maine Farm -- Cal-Maine Foods; is that correct?

A That is correct.

Q Who is on the board of Benton County Foods, then?

A I believe it's -- I believe there are -- Dolph Baker, Tim Dawson and -- and I think it's Ron Whaley.

BY THE COURT REPORTER: Can you spell Whaley's last name?

BY THE WITNESS: W-H-A-L-E-Y, I think.

MR. GARREN: (Continuing.)

Q Mr. Whaley, I think, was listed in the Cal-Maine Foods press release as a principal of Country Creek. Are you familiar with that organization?

Q Any others?
A No. I think the -- our other Arkansas operations are -- are Cal-Maine Foods operations.
Q All right. Like the Green Forest you mentioned?
A And Searcy, Arkansas.
Q And Searcy, Arkansas.
Okay. Are any of the entities listed on Page 61 of Exhibit 26, do they have operations in Oklahoma?
A No.
Q All right. And as I understand your testimony, the only entity that has operations on this list within the IRW would be Benton County Foods, LLC?
A Yes. And our interest there began this -- in 2007.
Q I believe the press release said April of 2007, if I'm not mistaken.
A Might have been May.
Q All right. Do any of the entities that are listed on Page 61 provide support directly or indirectly to Benton County Foods, LLC?

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

W.A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA	)	
Plaintiffs,	)	
vs.	)	4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al.,	)	
Defendants.	)	

VIDEOTAPED DEPOSITION OF RAY WEAR

Taken at the law offices of Mitchell, Williams, Selig, Gates & Wooyard, 5414 Pinnacle Point Drive, Suite 500, Rogers, Arkansas 72758, on July 26, 2007, at 9:44 a.m.

A. Sold the finished product for Peterson Farms.
Q. Was it a wholly owned subsidiary of Peterson Farms?
A. Yes.
Q. So what, if you can do this fairly succinctly, does the Peterson Farms operation consist of? Peterson Farms, Inc.
A. They own the -- they're -- they own -- well, Peterson LP Gas Company, and then they have the processing plant and the hatcheries, and then the Decatur General Store.
Q. Isn't there a feed mill that's --
A. Yes, there is.
Q. -- one of these companies owns?
A. Yes.
Q. Who owns the feed mill?
A. Peterson Farms owns the feed mill.
Q. Okay. Take a moment here and think about this, and tell me if there's any other operation Peterson Farms, Inc. conducts.
A. I don't believe so.
Q. Okay. Tell me about Evans & Evans. That is a corporation?
A. Yes, sir.
Q. And are you employed by Evans & Evans?
A. No. I'm employed by Peterson Farms.

Q. Okay. What is the function of Evans & Evans?
A. They own the broiler -- broilers that are sold to Peterson Farms.
Q. When they're finished and ready for processing --
A. Yes.
Q. -- at that point they're sold from Evans & Evans to Peterson Farms, Inc.?
A. Peterson Farms buys the live birds.
Q. Who owned them when they were chicks?
A. Evans & Evans.
Q. Okay. So I believe -- I thought you told me that Peterson Farms, Inc. owns and operates the -- the hatchery and the breeding operation.
A. Peterson Breeder Farms owns the breeders, and Peterson Farms does own the hatcheries.
Q. Okay. Is Peterson Breeder Farms a separate corporation?
A. It's an LLC.
Q. Okay. Is it owned by Peterson Farms, Inc.?
A. No, sir.
Q. So I guess, except for the LP gas operation, all of these entities you've told me about are involved in one way or another in production of poultry?
A. Yes, sir.
Q. What kinds of poultry and poultry products is

question. Did you understand it?
A. Yes. Yes. Peterson -- or Evans & Evans does own the birds that are raised in the broiler houses.
Q. When do they acquire ownership, Evans & Evans?
A. I'm thinking around '98, '99.
Q. I'm sorry. I didn't ask you that question that you could understand.

At what point in the life of the chicken does Evans & Evans acquire ownership of the chicken?
A. They purchase the eggs from Peterson Breeder Farms.
Q. Before they're hatched?
A. Yes, sir.
Q. And when they're hatched, how long do they remain the property of Evans & Evans?
A. Until they're ready for slaughter.
Q. Okay. So are the contracts that are signed with contract growers contracts with Evans & Evans or Peterson Farms, Inc.?
A. Evans & Evans.
Q. How long has that been the case?
A. It is since the early 2000s.
Q. Before that, did Peterson Farms, Inc. contract with the contract growers to raise its chickens?
A. Yes.
Q. Before Evans & Evans began buying the eggs and then

owning the chickens until they're ready for processing, did Peterson Farms, Inc. own the chickens from the time they were in the egg until they were ready for processing?
A. Yes.
Q. The broilers I'm referring to.
A. Yes.
Q. When did that change take place?
A. I think '98 or '99.
Q. And until '98 or '99 when Evans & Evans began acquiring the eggs and owning the eggs, owning the chickens through their lifespan until they're ready for processing, had Peterson Farms, from the inception of Peterson Farms, Inc., owned the birds from the time they were hatched until they were processed?
A. Yes.
Q. What years approximately would that have been? From 1998 back to when?
A. I -- I understand Peterson Farms started in 1939.
Q. Okay. In the poultry business?
A. Yes.
Q. And at that time, as far as you know, they solely were in the operation from the beginning to the end of the process?
A. The way I understood the way poultry worked at that time was other people would buy poultry, raise them, and

contract changes which occurred in March 2005 and talk about the differences between the contracts before that and the contracts after that and expectations of the growers before and after new -- or changes imposed, I'll say.

Would that be something better left to Mr. Houtchens?

A. No, I should be able to answer those.

Q. Okay. Let me hand you Exhibit 19, I think is what we've got it numbered.

(Wherein, Plaintiff's Exhibit 19 was marked.)

MR. RIGGS: We'll get copies in just a minute. Now I don't have one for myself. I need to get one back from y'all. I'm sorry.

Q. (Mr. Riggs continued.) Do you recognize Exhibit 19 --

A. I --

Q. -- Mr. Wear?

A. -- knew about the meetings, but I did not see the memo.

Q. Okay. And, again, maybe I should ask Mr. Houtchens about this, but it appears to be a letter from someone named Sam LeNarz dated March 9, 2005, to Peterson Broiler Growers. Do you agree that that's what it appears to be on its face?

A. Yes.
Q. Who is Sam LeNarz?
A. He was our manager over all live production.
Q. Is he still in that position?
A. No, sir.
Q. Is he still with the company?
A. No, sir.
Q. This letter, I believe you'll agree, tell me if you don't, discusses a meeting to be held in the coming week regarding points of change and new broiler contracts, addendums, and what he calls the intensified management program.

Since this is addressed to Peterson broiler growers on Peterson Farms stationary in 2005, can you explain that to -- unless I've misunderstood your testimony, I thought Evans & Evans contracted with the growers.
A. Evans & Evans did contract with the growers.
Q. In 2005?
A. Yes, sir.
Q. So why is Peterson Farms telling them about changes in their contracts?
A. Sam LeNarz was -- is employed by Peterson Farms, and Evans & Evans just leases employees from Peterson Farms.
Q. Do you believe that this letter does inform Peterson broiler growers of changes in their contracts?

A. It doesn't inform them of the changes.
Q. It tells them there have been changes. It doesn't tell them the nature of the changes.
A. (Witness nods head.)
MR. McDANIEL: Is that a yes?
Q. (Mr. Riggs continued.) Yeah, you need to answer audibly. Sorry.
A. Yes.
Q. Were any of these changes which this letter informs them about, although it doesn't tell them the nature of the changes, negotiated with any of the growers?
A. No.
Q. Let me hand you two more exhibits, 20 and 21. Well, let's see. Let me hand you Exhibit No. 20.
(Wherein, Plaintiff's Exhibit 20 was marked.)
Q. This is a document with, well, 15 to 20 pages to it. I want you to take time to familiarize yourself with it, if you will, and then I'm going to ask you about it. (Witness looks at document.) Okay. Mr. Wear, you've had a moment to look at the
Pages of this exhibit. Can you tell me what it is?
A. It is -- it appears to be a Power Point presentation that Sam LeNarz had put on for the growers.
Q. About the changes in the contract that -- that occurred in April of 2005, March or April of 2005?

A. Yes.
Q. Let's look at the first page under the one on top. I don't think they're numbered. But it says, "Today's Agenda." Do you see that?
A. Yes.
Q. I'm assuming that was the agenda for the meeting that was called for the contract growers to attend.
A. I would say that's correct.
Q. Now, this is a meeting for contract growers who are contracted with Evans & Evans, but it says Peterson Farms, Inc. Broiler Contract Addendums, doesn't it?
A. That is correct.
Q. Looking at the agenda, it says first item, "To show the old versus the new." Then it says, "Will take questions," and then it goes on, "Fill out and pass to tech." And then it says, "Will not engage in any discussions from the audience." Does that mean literally what it says?
A. I was not there, but I would say yes.
THE VIDEOGRAPHER: Excuse me, Counsel, we have about five minutes.
MR. RIGGS: Okay. Maybe I can get this next one in.
Q. (Mr. Riggs continued.) Couple of pages down it says, "Today's Format," and it has two columns, "Old

Contract" and "New Contract." And then in the pages following it maintains those columns, Old and New, for various topics. Do you see what I'm referring to?

A. Yes.

Q. The purpose being to educate the grower as to what is different about the new contracts.

A. Yes.

Q. Correct? Under the heading "Medications" Old and New, it says under Old, "Company paid for all medications." Under New, it says, "Grower will be charged for any medications."

Did that change occur with these changed contracts?

A. Yes.

Q. Was that change negotiated with the growers?

A. No.

Q. The next page says, "Water Treatment, Old contract, Company supplied and paid for, for a period of time." Under the New contract, "Company will supply, grower will pay."

Was that change negotiated?

A. No.

Q. Next page says, "Chick Delivery." The Old contract said the grower was to be present and assist. The New contract says if the grower is not present and assist, a $25 per house charge will be assessed.

Was that change negotiated?
A. No.
Q. Rather than go through all of these changes, let me just simply ask, were any of the changes between the old contract and the new contract negotiated with the grower?
A. No.
Q. Were any terms under any contracts Peterson ever had with any of its growers negotiated with the individual grower?
MR McDANIEL: Object to the form.
A. Not to my knowledge.
Q. (Mr. Riggs continued.) Since Evans & Evans has been in the position you've told me about, have any of the contracts -- terms been negotiated with any of the growers?
A. No.
Q. All of the growers who are under contract to Peterson Farms or Evans & Evans who raise broilers raise them under the same contract terms.
A. Yes.
Q. So there are no separate contracts for any individual growers. Correct?
MR. McDANIEL: Object to the form.
A. I believe there is now.
Q. (Mr. Riggs continued.) Tell me about those.

Q. Okay.
A. Number 13, "To have a Farm Management or Litter Management Plan." And I believe it just says they should follow their Litter Management Plan.
Q. Okay. The new contract, I want to take you back to that first paragraph under the heading "Compliance with All Applicable Laws." It says, "The GROWER agrees to" and then if you'll follow me down there to the last clause, "follow all applicable Environmental Laws pertaining to Poultry Litter disposal or Land Application of Poultry Litter."
Is that language anywhere to be found in any contract before this one, which is -- took effect in April of '05?
A. I thought it -- some of our contracts, yes, did have that in it where it said, had to -- had to follow all applicable laws, yes.
Q. When were those contracts in effect?
A. Off the top of my head, I cannot answer that, but I thought it's been in effect for several years.
Q. When did the contracts first start requiring the grower to have an animal waste management plan?
A. I -- I looked at contracts back to '99, and at that time it did.
Q. Was that about when the State of Oklahoma imposed

A. I'm not familiar with that, if there was.
Q. There was a communication also that required them to have alarm systems. Do you remember that?
MR. McDANIEL: I'm going to object to the form.
Q. (Mr. Riggs continued.) Okay. This might be out of your area anyway.
A. It's -- it's really not in my area.
Q. Okay. That would be Mr. Houtchens?
A. Yes.
Q. Any questions about how growers are paid for their work, would that be Mr. Houtchens' area?
A. No. That's in the contract.
Q. Okay. Are any of those terms regarding how payment is to be calculated negotiated with the grower?
A. No.
Q. So the grower couldn't negotiate a different method of payment?
A. No.
Q. Could he negotiate the price he's charged for the feed?
A. No. All growers are charged the same amount.
Q. They don't negotiate that amount?
A. No.
Q. Could a grower negotiate to be allowed to have

higher temperatures in his house to save himself money?

MR. McDANIEL: Object to the form.

A. That's more Kirk's area there. I -- I'm not a chicken grower.

Q. (Mr. Riggs continued.) Okay. He can't negotiate who owns the dead chickens, can he?

A. No.

Q. He can't negotiate the ingredients in his feed?

A. No.

Q. Can he negotiate who has responsibility for the poultry litter produced in the growing operation?

A. No.

Q. Has that ever been negotiated with any grower?

A. It's -- not to my knowledge, no.

Q. So if Mr. King, on Exhibit 23, is the person who wrote the note, "Do not agree," and made the arrow over to, "shall be responsible for the litter," he could not have negotiated that agreement with you.

A. That is correct.

Q. The company.

A. But if he had any issues with the litter, we would help him.

Q. In what way?

A. We have hauled litter for people before out of the watershed.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel, W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA, and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,	)	
Plaintiff,	)	CASE NO. 05-CV-329-GKF- SAJ
V.	)	
TYSON FOODS, TYSON POULTRY, INC., TYSON CHICKEN, INC., COBB-VANTRESS, INC., AVIAGEN, INC., CAL-MAINE FOODS, INC., CAL-MAINE FARMS, INC., CARGILL, INC., CARGILL TURKEY PRODUCTS, LLC, GEORGE'S, INC., GEORGE'S FARMS, INC., PETERSON FARMS, INC., SIMMONS FOODS, INC. AND WILLOWBROOK FOODS, INC.	)	
Defendants.	)	

REPORT OF DR. C. ROBERT TAYLOR

1. I am the Alfa Eminent Scholar and Professor of Agricultural Economics at Auburn University, Auburn, AL. This position is equivalent to the rank of Distinguished University Professor. I hold a B.S. degree in agricultural economics from Oklahoma State University, a M.S. degree in economics and agricultural economics from Kansas State University, and a Ph.D. degree in agricultural economics from the University of Missouri-Columbia. I have held tenured positions at the University of Illinois, Montana State University and Texas A&M University in addition to Auburn University. I served on the Executive Board and Foundation Board of the American Agricultural Economics Association, which is the national association for agricultural economists, from 1998-2001. I have served on the editorial board of four scholarly journals, including the American Journal of Agricultural Economics, which is the premier journal in my profession. I am co-author of one graduate textbook book,

7. The domestic poultry meat industry is fully integrated vertically[1], meaning that ownership and control of essentially all aspects of production in the vertical chain from baby chick to processed broilers and wholesale poultry products is held by poultry companies, commonly known as "integrators." [2] The poultry industry, which includes broiler, turkey and egg production, is the most vertically integrated of all major agricultural industries.[3] Each of the defendant companies is vertically integrated, and each has the business practices discussed below.

8. Integrators generally own or control the breeding flock, hatcheries, chicks, assignment of baby chicks to growers, feedmills, feed ingredients, transportation of feed, and processing (slaughter) plants. Integrators make all decisions regarding placement of baby chicks, the number of chicks placed with each grower, and when birds ready for processing will be picked up from the grower. Integrators also dictate specifications for growout house and equipment. Location of growout facilities and thus location of poultry waste generation is also fully controlled by the integrators.

9. Under the dominant business arrangement, the integrator owns the chicks and feed, while farmers, commonly called contract growers, carry out actual production, or growout, from chicks to birds ready for processing.[4] Growout of each flock is under the direct supervision and control of the integrator. Integrator representatives (service technicians) typically visit each growout house at least weekly to check on and supervise the grower's care of flocks and check on litter, waste and dead birds.[5] Integrator representatives also give instructions or directives to growers regarding maintenance and upgrades of facilities. Many of these obligations are found in standardized contracts integrators provide to growers. Molnar, et al, state, "*This*

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[1] A report by the Economic Research Service (ERS) of USDA defines vertical integration as a "method of vertical coordination representing the greatest degree of control that a firm can gain over another stage of production. Coordination of two or more stages occurs under common ownership via management directive." Steven W. Martinez, Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products. USDA/ERS Agricultural Economic Report No. 777, April 1999, p. iv. Clement Ward, in an Oklahoma State University Extension report defines vertical integration as "where one firm owns and controls a commodity and the products processed from it through the entire producer-to-consumer supply chain. In this case, the integrating firm decides what, how, and how much to produce and process to meet consumer demands." Beef, Pork and Poultry Industry Coordination, Bulletin F-552, Dec. 2004.

[2] The industry is self-described by the National Chicken Council as "vertically integrated." http://www.nationalchickencouncil.com/aboutIndustry/detail.cfm?id=15

[3] Development and extent of contracting with various crops and types of livestock is given in James M. MacDonald and Penni Korb, Agricultural Contracting Update: Contracts in 2003, USDA/ERS Economic Information Bulletin No. 9, Jan. 2006.

[4] See, for example, Tomislav Vukina, "Vertical Integration and Contracting in the U.S. Poultry Sector," Journal of Food Distribution Research, July 2001:29-38.

[5] Weekly visits by service technicians are confirmed by deposition testimony. See, for example, deposition of Patrick Pilkington, August 20, 2007, 50:12-18; deposition of Benny McClure, August 15, 2007, 137: 9-16; and deposition of Leesa Butler, August 22, 2007, 22:17-19, 16:8-15, and 36:13-17. See also, Dan L. Cunningham, Guide for Prospective Contract Broiler Producers, University of Georgia College of Agriculture and Environmental Sciences, Bulletin 1167, Revised May 2008, p. 3.

network of company specialists [i.e. service technicians] comprises the command-and-control structure that specifies the grower's production process."[6]

10. Integrators require growers to provide expensive specialized production facilities (houses, associated equipment, utilities), grower services (labor and management), and waste management and disposal.

11. Beginning in the 1950s contracting of broiler production evolved from simple credit arrangements with feed companies, to profit-sharing arrangements, to flat fee contracts, and finally to a basic feed-conversion contract.[7] Almost all broiler and turkey contracts now establish a base fee the grower will receive, with a plus or minus adjustment based on relative performance compared to other growers for the same integrator in the same complex. Economists often refer to this arrangement as a pay "tournament." Some poultry contracts, such as for breeders, pullets, and layers have a performance based (bonus) system, but do not rank growers against each other as in a tournament.

12. Open, transparent cash markets for broilers or turkeys ready for processing disappeared decades ago.[8] Because there is no open market for poultry ready for processing, there is no economically viable alternative for commercial, non-specialty growers who wish to be independent from integrators. Integrators will not purchase birds from truly independent growers. Therefore, a person cannot independently raise commercial poultry and have a ready cash market for them.

13. In April 2008 the Pew Commission published a comprehensive report on industrial farm animal production. This project was funded by a grant from The Pew Charitable Trusts to the Johns Hopkins Bloomberg School of Public Health to investigate the problems associated with industrial farm animal production, including poultry. This Commission succinctly described the poultry industry and waste problems, *"Most broiler chickens raised in the United States are produced under contract arrangements with integrated poultry producing companies. These companies typically control almost every aspect of production—they own the breeder flocks, hatcheries, chickens, feed mills, processing plants, and marketing agreements. Contract growers produce the chickens from hatchings to marketable size in broiler houses using equipment that meets the specifications of the integrator. The producer owns or leases the land and the facilities to raise the broilers, and the integrator owns the chickens and feed. Growers are also responsible for management of the litter as well as for the taxes, utilities, and insurance. The amount of litter produced annually for a broiler facility can be substantial; for example, a broiler farm that has*

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[6] J. J. Molnar, T. Hoban and G. Brant, "Passing the Cluck, Dodging Pullets: Corporate Power, Environmental Responsibility, and the Contract Poultry Grower," Southern Rural Sociology, Vol. 18 (2), 2002, pp88-110.

[7] Vukina further discusses evolution of the poultry industry. See *supra* note 4. The lack of bargaining power is also discussed by Daryll E. Ray, "On Compensating Producers Who Contract Production," Article Number 233, Agricultural Policy Analysis Center, University of Tennessee, 2005.

[8] Although there is no open, transparent market for birds ready for processing, there are special deals allowing executives and insiders of some integrators to sell birds ready for processing to the integrator.

four houses (each containing between 28,000 and 30,000 chickens) and that markets 4-pound broilers could generate approximately 340 tons of manure per year."[9]

14. In the early history of the vertically integrated poultry industry, the integrators and growers were partners and tended to look out for each other's economic welfare. Vukina and Leegomonchai, state, *"Production contracts have played a decisive role in the broiler industry's remarkable growth but the integrator-grower relations have gradually worsened. Starting in the mid 1990s the tensions have received increasing attention nationwide."* [10] The industry has evolved to the point that growers are completely at the mercy of their integrator. In economics, this is referred to as monopsony, or "buyer" or "contractor" power held by the integrator over their growers.

15. New growers are not permitted to negotiate contract terms with integrators; the only option given by an integrator to a grower is to accept or reject the contract.[11] Vukina and Leegomonchai, state, *"Modern broiler contracts are written by the integrator and offered to prospective growers on a* ***take-it-or-leave-it*** *basis."*[12] Moreover, the integrator solely determines when a new contract is adopted and all terms of that contract. Because of the long economic life of highly specialized poultry growout facilities, the business options facing an existing grower are often (a) bankruptcy, or (b) acceptance of whatever contract changes are dictated by the integrator. Arms-length contract negotiations rarely if ever occur between grower and integrator; rather, contracts of adhesion characterize the industry. [13]

16. Integrators often assert that the Packers & Stockyards Act (PSA) requires them to have the same contract for all growers. In my opinion, poultry integrators often use such PSA assertions as a pretext to maintain complete contractual control over growers.

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[9] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 42.

[10] Tomislav Vukina and Porametr Leegomonchai, "Political Economy of Regulation of Broiler Contracts," American Journal of Agricultural Economics 88, December 2006, 1258-1265.

[11] Patrick Pilkington testified at the preliminary injunction hearing in this case that Tyson contracts were non-negotiable. PI Transcript, March 3, 2008:1465:22-25. Deposition statements of representatives of defendant integrators also generally establish that growers are not permitted to negotiate contracts or contract changes. See, Leasea Butler, deposition of 8/22/2007 at 12:16 through 13:13; Benny McClure, deposition of 8/15/2007 at 132:24 through 133:10; Gary Murphy deposition of 7/30/2007 at 230: 6-12; Ray Wear deposition of 7/26/2007 at 56:14 through 57:14; and Patrick Pilkington deposition of 8/20/2007 at 20:6 through 21:12. A certified mail letter dated 1/31/1994 from Julian Wallace, Live Production Manager, Tyson Foods, Inc. to Mr. Norman Ranger, Idabel, OK, states, "Our available contract, as you well know, is non-negotiable …"

[12] Tomislav Vukina and Porametr Leegomonchai, "Political Economy of Regulation of Broiler Contracts," American Journal of Agricultural Economics 88, December 2006, 1258-1265. Bold emphasis added.

[13] My translation of the legal concept of a contract of adhesion is that it means there is a such an imbalance of economic power that the only viable option one side (in this case the grower) to the transaction has is to accept or reject what is offered by the other side (integrator).

17. Integrators PSA assertions are belied by the fact than many integrators have different contracts for different complexes, even adjacent complexes, bounds of which integrators define without any reference to the PSA. A grower in one complex may have production facilities in close proximity to another grower for the same integrator but have a different contract, only because the two growers' production facilities are in different complexes.

18. Gary Murphy, representing defendant Simmons Foods, claimed that no negotiations occurred with growers because *"Packers and Stockyards pretty well dictates that we have to treat all growers the same."*[14] It is not clear whether he was referring to the Packers and Stockyards agency (now GIPSA), or to the PSA law itself; certainly USDA/GIPSA does not have the authority to make such a dictate because when Congress added poultry to the PSA in 1987 they failed to give USDA authority to enforce Section 202 of the Act.

19. Patrick Pilkington, representing defendant Tyson Foods, said, *"it's my understanding that we have an obligation through Packers and Stockyards regulations to treat similarly situated growers similarly."* [15] Yet, Pilkington's assertion is contradicted by growout deals Tyson executives and insiders had for many years. Security and Exchange (SEC) documents show that Tyson executives and insiders have had substantially different deals that allowed them to buy chicks, feed and medication, have the birds apparently grown by unspecified contract growers, then sold back to Tyson or to unrelated parties. SEC documents show that in the aggregate these insider deals accounted for millions of dollars annually.[16] Obviously this is a substantially different growout arrangement than what Tyson offered to contract growers.

20. The integrators PSA assertion is also belied by Peterson's grower contracts (e.g. PFIRWP-000819 – PFIRWP-000820) that show the key flock cost parameter (often called the prime cost or median cost) used to compute tournament pay for individual flocks differs for insiders than for other growers. Thus, pay for an insider's flock may differ from pay for a contract grower, even if the flocks had identical performance (individual flock cost for the settlement week).

21. The PSA also applies to hogs and cattle, yet there are a wide variety of contractual relationships existing in each of these industries. In fact, Tyson has historically had several types of contracts for obtaining slaughter cattle, even those coming from the same area or the same feedlot. Therefore, poultry integrators' common assertion that the PSA prevents them from negotiating with individual growers is pretext, in my opinion.

22. Lack of options for a grower is apparent from a 2004 national survey of growers reported by USDA/ERS in April 2008. This report states, *"Fifty-nine percent of growers with broiler production contracts responded that they had no marketing*

[14] Gary Murphy, deposition of July 30, 2007: at 136:2-5.
[15] Patrick Pilkington, deposition of August 20, 2007 at 21:3-12.
[16] See, for example, Tyson's Security and Exchange Commission (SEC) form DEF 14A filed 12/31/2003.

option other than their current integrator … A quarter of contract broiler operations had only a single integrator in the area, while another 29 percent reported two integrators and 22 percent reported three. A given integrator may not be taking on new growers, and as a result it is quite possible for a grower to report that there are two or three companies in the area, but still report that he/she has no alternatives to his/her present contractor. … Contract growers make significant long-term investments in housing. ***One of the striking features of production contracts is that, although growers and integrators typically have long-term relationships, contracts are usually written for short durations****. … Growers and integrators maintain long-term relationships with short-term contracts by renewing contracts annually. Contract renewal, however, often requires a significant new capital investment by growers."*[17] MacDonald and Korb, economists with ERS/USDA, state, *"Once the investment is made, growers face the risk of opportunistic behavior by integrators, who may have considerable monopsony power at that point. … With a short-term contract, integrators may adjust payment schemes, or hold up growers for additional investments, as a condition of renewal."*[18] The 2008 Pew Commission report on Industrialized Farm Animal Production emphasizes the limited choices grower have, *"Once the commitment is made to such capital investment, many farmers have no choice but to continue to produce until the loan is paid off. Such contracts make access to open and competitive markets nearly impossible for most … poultry producers, who must contract with integrators if they are to sell their product."*[19] These industry characteristics are manifestations of the control poultry integrators have over growers nationally and in the IRW. Even though there are several integrators in the IRW, defendant integrators maintain monopsony or oligopsony power over their contract growers, extending to waste and dead bird disposal.

23. A national survey of poultry producers conducted by Purdue University in 1999 for Farmers Legal Action Group (FLAG) with USDA funding reported that survey respondents had been growing broilers an average of 16 years.[20]

24. Poultry grow-out operations have a very long economic payout period, typically 20-30 years for a wood frame house and longer for a metal frame house.[21]

25. Broiler production is both capital and labor intensive.[22] Growers bring roughly one-half of the capital and much of the labor required to produce a processed whole bird.

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[17] James MacDonald and Penni Korb, Agricultural Contracting Update, 2005, USDA, Economic Research Service, Economic Information Bulletin Number 35, April 2008. Bold emphasis added.
[18] *Ibid, pp 12-13.*
[19] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 49.
[20] Farmers Legal Action Group, Assessing the Impact of Integrator Practices on Contract Poultry Growers, September 2001, p. 2.3.
[21] See. For example, Cunningham who states that poultry houses represent long-term investments of 30 years or more. Dan L. Cunningham, Cash Flow Estimates for Contract Broiler Poroduction in Georgia: A 20-Year Analysis, University of Georgia College of Agriculture and Environmental Sciences, Cooperative Extension Service, Bulletin 1228, March 2003.

than one flock. For example, Tyson's 2005 contract covers three years (TSN107938SOK – TSN107939SOK), and Simmon's 2006 addendum covers seven years, but there is no wording in these contracts requiring either defendant to provide birds in a continuous, timely way necessary for the grower's economic survival over the stated multi-year time period.

30. A USDA survey of poultry growers in 2001 revealed that 35% of contracts were for less than three months, and only 16% of contracts were for longer than one year.[27] A USDA survey showed that the median length of broiler contracts was 12 months in 2004, which is consistent with the length of most contracts in the IRW.[28]

31. Integrators typically mandate specifications for poultry houses and equipment, and often require growers to make investments in upgrading equipment or facilities. A 2001 USDA national survey reveals that 84% of contract poultry growers were *"... required to make investments in equipment or facilities."*[29] A USDA survey update revealed that 49% of broiler growers were required to make capital investments in 2004, and that this investment in the single year averaged $49,037 per grower. Survey results imply that the average respondent had 3-4 standard size houses, so the average investment in the single year averaged $10,000-15,000 per house for about one-half of the growers.

32. New growers typically borrow all funds for construction of houses and equipment, offering a small acreage of land as collateral. Mandated house and equipment upgrades can send growers back to the start of their debt challenge.[30] The on-going debt challenge often puts growers at the mercy of any changes in contract terms desired by the integrator. Growers rarely have any viable economic option other than accepting contract changes dictated by the integrator.

33. Farmers become contract growers only with approval of an integrator. Similarly, existing growers who wish to expand production by building additional houses do so only with the integrators express permission.

34. Once waste is removed from the poultry house it no longer has a role in the defendants' poultry production process.

35. Once a person becomes a grower, the integrator has almost total economic control and determines profitability or lack thereof of the average grow-out operation. Thus, the integrator effectively makes the decisions that determine whether growers have sufficient resources to properly manage and dispose of waste produced by the integrator's birds.

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[27] http://www.ers.usda.gov/Briefing/FarmStructure/Questions/livestock.htm
[28] James MacDonald and Penni Korb, Agricultural Contracting Update, 2005, USDA, Economic Research Service, Economic Information Bulletin Number 35, April 2008.
[29] http://www.ers.usda.gov/Briefing/FarmStructure/Questions/livestock.htm
[30] Mark Jenner, Understanding the Lender's Share of Grower Contract Pay, American Farm Bureau Federation, January 3, 2002.

'dodge pullets' when they retain ownership of live animals, but dead birds become the farmer's property and disposal problem." [39]

43. A Pew Commission report, published in 2008, notes the integrators shifting of risks and external costs to growers, *"Under the modern-day contracts between integrators and growers, the latter are usually responsible for disposition of the animal waste and the carcasses of animals that die before shipment to the processor. The costs of pollution and waste management are also the grower's responsibility. ... Because the integrators are few in number and control much if not all of the market, the grower often has little market power and may not be able to demand a price high enough to cover the costs of waste disposal and environmental degradation. These environmental costs are thereby 'externalized' to the general society and are not captured in the costs of production nor reflected in the retail price of the product."*[40] The 2008 report on CAFOs by the Union of Concerned Scientists discusses at length the external costs of excess manure being borne by society rather than integrators.[41] Defendants' shifting of environmental risks to growers and society at large is evident in the IRW.

44. Poultry contracts in the IRW generally show an increasing effort by defendants' to explicitly shift to contract growers the environmental costs and health risk costs associated with poultry waste generated from defendant's birds, feed, and medicine.

45. Early grower contracts made no mention of used litter and waste disposal responsibilities. However, since the early 1990s, defendants' contracts typically state that the grower is responsible for meeting all applicable state, federal, and local environmental laws and regulations. Examples of the evolution of defendant's contracts with specific reference to used litter and waste follow.

    a. Defendant Cargill's turkey contract in 1981 did not mention responsibility for, or disposal of, used litter and waste, except for the grower's responsibility to dispose of dead birds (CARTP133037 – CARTP133047). Cargill's 1990 contract, however, stated, *"Grower agrees to comply with all applicable state, county, local and federal* ***health*** *laws."* (CARTP135792 – CARTP135796). Cargill's 1993 contract expanded wording in the 1990 contract to state *"Grower aggress to comply with all applicable state, local, and federal laws and requirements, including but not limited to* ***health and environmental*** *regulations."*[42] (CARTP002257

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[39] J. J. Molnar, T. Hoban and G. Brant, "Passing the Cluck, Dodging Pullets: Corporate Power, Environmental Responsibility, and the Contract Poultry Grower," Southern Rural Sociology, Vol. 18 (2), 2002, pp88-110.

[40] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 6.

[41] Doug Gurian-Sherman, CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations, Union of Concerned Scientists, April 2008. Chapter 3, in particular, discusses the externalized costs of CAFOs.

[42] Bold emphasis added.

– CARTP002260). Cargill's 2005 contract also required the grower to have an approved Nutrient Management Plan that complied with all applicable federal, state, and local laws and regulations and complied with best management and agronomic practices in the region (CARTP007134 – CARTP007141).

b. Defendant Tyson's 1986 broiler contract did not specifically mention disposal of used litter and waste, or responsibility for disposal of dead birds (TSN54063SOK – TSN54064SOK). However, Tyson's broiler contract for 1999 states *"The Producer shall be responsible for the removal of all dead birds and litter and shall dispose of dead birds and litter in accordance with the law applicable to this location."* (TSN54238SOK – TSN54239SOK). Tyson's 2006 broiler contract is more specific, *"Producer will comply with all applicable federal, state, and local statutes, rules, regulations, and ordinances in performance of this Contract, including but not limited to all those governing environmental and poultry litter management."* (TSN107938SOK – TSN107939SOK).

c. Defendant George's' 1987 pullet growing contract did not mention responsibility for disposal or ownership of used litter and waste (GE312 – GE315), while their 1993 contract states that the grower will *"Dispose of litter in accordance with Best Management Practices, a copy of which has been provided,*[43] *and to work with Soil Conservation Service in developing a Nutrient Management Plan for his farm, and to follow all regulations pertaining to litter disposal."* (GE241 – GE246). George's' 1997 pullet growing contract has the same wording about litter disposal as the 1993 contract (GE817 – GE822), but has an attachment that gives detailed guidelines for poultry waste management. This attachment (GE823) states that it was *"compiled by Cooperative Committee for Poultry Farm Litter and Waste Disposal, comprised of members of the Arkansas Poultry Federation, Soil Conservation Service, Arkansas Department of Pollution Control and Ecology, Arkansas Extension Service, and Arkansas Soil & Water Conservation Service."* George's' broiler contracts show a similar evolution of assignment of responsibility for used litter and waste to the grower.

d. Defendant Simmons' broiler contracts for 1979 and 1986 make no mention of responsibility for disposal or ownership of used litter and waste (SIM AG 13722 –SIM AG13724, SIM AG 30790 – SIM AG 30793). However, their 1995 broiler contract states that the grower agrees *"To follow the Federal Insecticide, Fungicide and Rodenticide Act, as well as appropriate FDA, USDA, and EPA regulations."* (SIM AG 12633 – SIM AG 12635). The 1997 contract added the requirement that the grower *"dispose of litter in accordance with Best Management Practices*

[43] Such a copy was not attached to the 1993 contract I reviewed.

as detailed by the nutrient management plan for Grower's farm developed with appropriate governmental agencies, and to follow all applicable regulations pertaining to litter disposal." (SIM AG 12388).

e. Defendant Peterson's 2004 broiler contract, like recent Simmons' contracts, states that the Grower agrees, *"To follow Federal Insecticide, Fungicide and Rodenticide Act of 1947, as well as appropriate FDA, USDA, State, and EPA regulations."* (PFIRWP-000835 –PFIRWP-000844). The contract also requires the grower to have and follow a litter management plan, and to provide Peterson with a copy of that plan. Unlike contracts used by other defendant's, the 1999 Peterson contract states, *"All poultry waste produced by the birds covered by this contract shall be the exclusive property of the Contract Farmer and the Contract Farmer shall be responsible for and receive all of the economic benefits from the use and disposal of said waste."* (PFIRWP-0747060 – PFIRWP-0747062) Peterson's 2004 broiler contract has essentially the same wording, *"... the litter shall be the exclusive property of the contract grower and contract grower shall be responsible for and receive all of the economic benefits from the use and disposal of said litter."* (PFIRWP-000838). Peterson's 2005 broiler contract (PFIRWP-000819 – PFIRWP-000829) states that the litter is the exclusive property of the grower, but then goes on to specify exactly how the grower is to dispose of litter and waste he/she presumably owns. Waste disposal practices in Peterson's contract (PFIRWP-000826) are those developed by the Cooperative Committee for Poultry Farm Litter and Waste Disposal, which are also included in Georges recent contracts (e.g. GE823).

f. Defendant Peterson's 1997 Breeder Hen contract makes no mention of responsibility for waste generated by defendant's birds, although it does require the grower to dispose of all dead birds. Defendant Petersons's 2004 Pullet contract requires a litter management plan as required by Peterson Farms **or** federal, state or local law. Unlike contracts used by other defendants, this Peterson contract states, *"all poultry waste produced by the birds covered by this Agreement shall be the exclusive property of the contract farmer and the contract farmer shall be responsible for and receive all of the economic benefits from the use and disposal of said waste."* (PFIRWE0012498 – PFIRWE0012503)

g. The 2003 Cal-Maine Breeder Pullet Brooding and Rearing Agreement does not explicitly mention responsibility for used litter and waste, although it states that the grower must *"... comply with all applicable sta[t]e, local, and federal health laws. In the event that grower shall fail to comply with an[y] provision of the applicable laws, then owner is hereby granted and shall have the right to enter upon the grower's premises and correct and perform such necessary acts so as to comply*

with said laws or regulations and the expenses incurred thereto shall be charged to the grower." (CM-001366 – CM-001368).

h. A 1991 Cal-Maine Egg Production Agreement states that the grower agrees *"To provide all clean up, according to Owner's specifications; and to comply with accepted practices of waste and dead bird disposal. ... To comply with all applicable state, county, local and federal laws; in the event that grower shall fail to comply with any provision of the applicable laws, then owner is hereby granted and shall have the right to enter upon the grower's premises ... and correct and perform such necessary acts so as to comply with said laws or regulations and the expenses incurred thereto shall be charged to the Producer."* (CM-000000338 -- CM-000000343). In contrast, a 1992 Cal-Maine Egg Production Agreement states that *"Producer agrees to be responsible for the proper clean up of Producer's facilities in accordance with generally accepted poultry husbandry practices and to comply with all applicable laws and regulations, including, but not limited to, rules and regulations promulgated by the Environmental Protection Agency and the agency of Producer's state responsible for disposal of waste and emissions, relative to the disposal of any and all waste products produced from Producer's facilities including, but not limited to, waste water run-off, manure and dead birds."* (CM-000000332 – CM-000000333).

i. Cobb-Vantress Breeder Hen contract for 2001 requires the grower *"To clean litter from houses upon completion of bird cycle."* This contract also states *"The Producer agrees to provide poultry disposal equipment and to dispose of all dead birds according to the company's specifications and as required by federal, state and local laws."* Although this contract requires the grower to provide "poultry" disposal equipment, it does not specifically mention responsibility for disposal of waste. (TSN60299SOK -- TSN60302SOK) In contrast, the 2003 Cobb-Vantress Breeder Hen contract states *"The Producer shall be responsible for removing all dead birds and litter and shall dispose of such in accordance with the Company's specifications and applicable laws. ... The Producer agrees to remove all litter and debris from the poultry houses as soon as possible after the completion of the bird cycle."* (TSN60289SOK -- TSN60294SOK) The 2005 Cobb-Vantress Breeder Hen contract adds to the wording in the 2003 contract that *"The Producer agrees to comply with all applicable federal, state, and local statutes, rules, regulations, and ordinances in performance of this contract, including but not limited to all those governing environmental and poultry litter management."* (TSN60277SOK -- TSN60281SOK)

j. Appendix B gives my abbreviated summary of features of defendant's contracts that I have reviewed.

63. From the early 1990s, there have been numerous economic studies addressing the broad topic of removing excess poultry waste from watersheds in which nutrients, particularly phosphorus, exceed the assimilative capacity of available land. Notable studies include the following:

a. Bosch and Napit (1991) examined the economics of transporting broiler litter to achieve more effective use as a fertilizer in Virginia. [66]

b. Schnitkey and Miranda (1993) examined the long-run effects of phosphorus runoff controls on optimal livestock production and manure application practices, with application in the Midwest hog-corn system. [67]

c. Govindasamy, Cochran and Butchberger (1994) examined the economics of phosphorus policy in the Muddy Fork watershed of the IRW. [68]

d. Govindasamy and Cochran (1995) studies the economic feasibility of transporting poultry litter from northwest Arkansas to Delta row crop production. [69]

e. Martin and Zering (1997) considered the policy implications of relationships between industrialized poultry production and the environment. [70]

f. McIntosh, Park and Karnum (1997) examined the impact of nutrient management legislation on the U.S. broiler industry. [71]

g. Innes (2000) developed a theoretical model to examine the aggregate economic efficiency effects of alternative livestock waste regulatory options. [72]

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[66] Bosch, D.J., and K.B. Napit. "The Economic Potential for More Effective Poultry Litter Use in Virginia." Pub. No, SP-91- 11, Dept. of Agr, and Appl. Econ., Virginia Polytechnic Institute and State University, Blacksburg, 1991.

[67] Gary D. Schnitkey and Mario J. Miranda, "The Impact of Pollution Controls on Livestock-Crop Producers," Journal of Agricultural and Resource Economics, Vol. 18, July 1993: 25-36.

[68] R. Govindasamy, M. J. Cochran, and E. Buchberger, "Economic Implications of Phosphorus Loading Policies for Pasture Land Applications of Poultry Litter," Water Resources Bulletin, Vol.30, No. 5, October 1994: 901-910.

[69] Ramu Govindasamy and Mark J. Cochran, "The Feasibility of Poultry Litter Transportation from Environmentally Sensitive Areas to Delta Row Crop Production," Agricultural and Resource Economics Review, April 1995.

[70] Laura L. Martin and Kelly D. Zering, "Relationships Between Industrialized Agriculture and Environmental Consequences: The Case of Vertical Coordination in Broilers and Hogs," Journal of Agricultural and Applied Economics, Vol. 29, July 1997:45-56.

[71] Christopher S. McIntosh, Timothy A. Park, and Chandrashekar Karnum, "The Potential Impact of Nutrient Management Legislation on the U.S. Broiler Industry," Paper presented at the Western Agricultural Economics Association Annual Meeting, July 13-16, 1997, Reno, NV.

[72] Robert Innes, "The Economics of Livestock Waste and Its Regulation," American Journal of Agricultural Economics, Vol. 82, February 2000:97-117.

h. Paudel and McIntosh (2000) examined optimal poultry litter utilization for phosphorus disposal in Georgia. [73]

i. Goodwin, Hipp and Wimberly (2000) examined a third-party enterprise for moving large quantities of poultry waste off farms. [74]

j. Yang, Bosch, Nordberg and Wolfe (2000) examined the effects of phosphorus based nutrient management plans on dairy and poultry farms in Virginia, and also addressed environmental risks. [75]

k. Pease (2000) provided a cooperative extension bulletin on transportation issues using litter as a nutrient source in Virginia. [76]

l. Pelletier, Pease and Kenyou (2001) examined the economics of poultry waste transportation in Virginia. [77]

m. Jones and D'Souza (2001) examined trading poultry litter in West Virginia. [78]

n. Lichtenberg, Parker and Lynch (2002) examined long distance transport of litter off the Delmarva Peninsula. [79]

o. Adhikari, Paudel and Martin (2002) evaluated broiler litter transportation in northern Alabama. [80]

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[73] Krishna P. Paudel and Christopher S. McIntosh, "Economics of Poultry Litter Utilization and Optimal Environmental Policy for Phosphorus Disposal in Georgia," paper presented at the Southern Agricultural Economics Association annual meeting, Lexington, KY, January 29-February2, 2000.

[74] H. L. Goodwin, Janie Hipp, and Jim Wimberly, "Off-Farm Liter Management and Third-Party Enterprises," Paper prepared for the Foundation for Organic Resources Management for Winrock International under a USDA grant, January 2000.

[75] Xiao Yang, Darrell J. Bosch, Tone Nordberg, and Mary Leigh Wolfe, "Phosphorus-Based Nutrient Management Planning on Dairy/Poultry Farms: Implications for Economic and Environmental Risks," Paper presented at the annual meeting of the American Agricultural Economics Association, Tampa, FL, July 30-August 2, 2000.

[76] Jim Pease, "Transport Issues in Using Litter as a Nutrient Source," Farm Business Management Update, Virginia Cooperative Extension Service, Virginia Tech University, August 2000.

[77] Beth Ann Pelletier, James Pease, and David Kenyon, Economic Analysis of Virginia Poultry Litter Transportation, Virginia Agricultural Experiment Station Bulletin 01-1, February 2001.

[78] Kezelee Jones and Gerard D'Souza, "Trading Poultry Litter at the Watershed Level: A Goal Focusing Application," Agricultural and Resource Economics Review, Vol. 30, April 2001: 56-65.

[79] Erik Lichtenberg, Doug Parker and Lori Lynch, "Economic Value of Poultry Litter Supplies in Alternative Uses," Policy Analysis Report No. 02-02, Center for Agricultural and Natural Resource Policy, University of Maryland, October 2002.

[80] Murali Adhikari, Krishna P. Paudel, and Neil R. Martin, Jr., "An Economic Strategy for Preventing Water Pollution by Using a Phosphorus Consistent Transportation Model: A Case of Broiler Litter Management," Department of Agricultural Economics, Report 100-2002, Louisiana State University, 2002.

p. Ancev, Stoecker and Storm (2003) use a GIS model to derive spatially optimal least-cost allocation of management practices to reduce phosphorus runoff in the Eucha-Spavinaw watershed. [81]

q. Ancev, Stoecker and Storm (2003) examined transportation of litter within and out of the Eucha-Spavinaw watershed. [82]

r. Paudel, Hite, Intarapapong, and Susanto (2003) examined the economic optimum broiler litter application considering water quality standards. [83]

s. Parker (2004) studies the economics of creating markets for manure with reference to the Chesapeake Bay Region which has a high concentration of poultry. [84]

t. Guru and Goodwin (2004) examined policy and economic implications of self-regulation of poultry waste in the IRW and ESW. [85]

u. Carreira, Young and Goodwin (2005) focused on the economics of removing excess poultry waste from northwest Arkansas and transporting it to Delta row crop production. [86]

v. Collins and Basden (2006) examine poultry litter transport in West Virginia. [87]

w. Bonham, Bosch and Pease (2006) studies cost-effective agricultural nutrient mangement alternatives for the Chesapeak Bay area. [88]

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[81] Tihomir Ancev, Arthur L. Stoecker and Daniel E. Storm, "Least-Cost Watershed Management Solutions: Using GIS Data in Economic Modeling of a Watershed," Paper presented at the Southern Agricultural Economics Association Annual Meeting, February, 2003.

[82] Tihomir Ancev, Arthur L. Stoecker and Daniel E. Storm, "Optimal Spatial Allocation of Waste Management Practices to Reduce Phosphorus Pollution in a Watershed," Paper presented at the American Agricultural Economics Association Annual Meeting, Montreal, Canada, July 27-30, 2003.

[83] Krishna P. Paudel, Diane Hite, Walaiporn Intarapapong, and Dwi Susanto, "A Watershed-Based Economic Model of Alternative Management Practices in Southern Agricultural Systems," Journal of Agricultural and Applied Economics, Vol. 35, August 2003: 381-390.

[84] Doug Parker, "Creating Markets for Manure: Basin-Wide Management in the Chesapeake Bay Region," paper presented at the joint annual meeting of the Northeast Agricultural and Resource Economics Association and the Canadian Agricultural Economics Society, Halifax, Nova Scotia, Canada, June 20-23, 2004.

[85] Manjula V. Guru and H. L. Goodwin, "The Case for Acceptable Levels of Environmental Self-Regulation in the Poultry Industry: Policy and Economic Implications," paper presented at the American Agricultural Economics Association Annual Meeting, Denver, CO, August 1-4, 2004.

[86] R. I. Carreira, K. B. Young, and H. L. Goodwin, "Too Litter, Too Late: Economic Logistics of Transporting Nutreint Rick Poultry Litter Out of Nutrient-Saturated Regions," paper presented at the American Agricultural Economics Association Annual Meeting, Providence, RI, July 24-27, 2005.

[87] Alan R. Collins and Tom Basden, "A Policy Evaluation of Transport Subsidies for Poultry Litter in West Virginia," Review of Agricultural Economics, Vol. 28, 2006:72-88.

x. Parker and Li (2006) analyses poultry litter use and transportation on Marlyland's eastern shore. [89]

y. Willett, Mitchell, Goodwin, Vieux and Popp (2006) analyze the opportunity cost of regulating phosphorus from broiler production in the Illinois River Basin.[90]

z. Bhattarai and Paudel (2006) examine the feasibility of broiler manure tranportation and application in crop production in Louisiana. [91]

aa. Carreira, Goodwin and Hamm (2006) identified problems that prevent a litter market from fully developing. [92]

bb. Stoecker, Marumo, Machooka, Howry, Storm and White (2007) examine poultry waste use and transportation in the ESW under alternative pollution constraints. [93]

cc. Carreira, Young, Goodwin and Wailes (2007) optimized the transport of poultry waste out of the ESW and IRW to cropland in Eastern Arkansas. [94]

dd. Kemper, Goodwin and Mazaffari (2008) examine the value of baled broiler litter for cotton production in the Arkansas Delta. [95]

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[88] John G. Bonham, Darrell J. Bosch and James W. Pease, "Cost-Effectiveness of Nutrient Management and Buffers: Comparisons of Two Spatial Scenarios," Journal of Agricultural and Applied Economics, Vol. 38, April 2006: 17-32.

[89] Doug Parker, and Qing Li, "Poultry Litter Use and Transport in Caroline, Queen Anne's, Somerset and Wicomico Counties in Maryland: A Summary Report," Mid-Atlantic Regional Water Program, MAWP 0601, January 2006.

[90] Keith Willett, David M. Mitchell, H. L. Goodwin, Baxter Vieux, and Jennic S. Popp, "The Opportunity Cost of Regulating Phosphorus from Broiler Production in the Illinois River Basin," Journal of Environmental Planning and Management, Vol 49, March 2006: 181-207.

[91] Keshav Bhattarai and Krishna P. Paudel, "Assessing the Feasibility of Broiler Manure Transportation and Application in Crop Production under Environmental Restrictions," paper presented at the Southern Agricultural Economics Association Annual Meeting, Orlando, FL, February 5-8, 2006.

[92] R. I. Carreira, H. L. Goodwin, and S. J. Hamm, "How Much is Poultry Litter Worth?" paper presented at the Southern Agricultural Economics Association Annual Meeting, Orlando, FL, Feb. 4-8, 2006.

[93] Arthur Stoecker, Davis S. Marumo, Stella Machooka, Sierra Howry, Daniel Storm and Michael White, "Determination of Least Cost Phosphorus Abatement Practices in a Watershed Under Stochastic Conditions," paper presented at the American Agricultural Economics Association Annual Meeting, Portland, OR, July 29-August1, 2007.

[94] R. I. Carreira, K. B. Youg, H.L. Goodwin and E.J. Wailes, "How Far Can Poultry Litter Go? A New Technology for Litter Transport," Journal of Agricultural and Applied Economics, Vol. 39, December 2007:611-623.

[95] Nathan Kemper, H. L. Goodwin, and Morteza Mozaffari, "The Nitrogen Fertilizer Value of Baled Broiler Litter for Cotton Production in the Arkansas Delta," paper presented at the Southern Agricultural Economics Association Annual Meeting, Dallas, TX, February 2-5, 2008.

level of 100%, as long as fertilizer and its application are not free[97]. Worded another way, the most profitable fertilizer application rate is associated with a soil phosphorus test level less than that associated with the agronomic maximum yield.

68. A common, but usually incorrect, way of placing a gross value on poultry waste is based on a cost comparison with commercial fertilizer. [98] For example, the Oklahoma NRCS Information Sheet, Poultry Litter Manure Transfer Incentives, makes such a calculation, *"Using current 2005 prices for N-P-K bought commercially, a ton of broiler litter would be worth $41.96/ton."* In fact, such a calculation only establishes the **maximum** gross value of poultry waste, which typically overstates the value of poultry waste because plant nutrients in poultry waste are often in the wrong proportions for optimal usage by plants. In particular, soil P (and K) test results for the IRW indicate that most fields have P levels so high that there is no plant (e.g. forage) yield response to additional P. Therefore there is "zero" gross value to additional P applied either as poultry waste or as commercial fertilizer. In other words, there is no gross value attached to phosphorus in poultry waste applied to land in the IRW, and it is incorrect to use a commercial phosphorus price to value poultry waste for application to fields in the IRW that already exceed the agronomic maximum phosphorus.

69. To the extent that soil phosphorus and potassium already exceed the economic and agronomic maximums, then P and K have no value when applied to soils in the IRW. However, if soil P and K do not exceed maximums, as appears to be the case with cropland in the Arkansas Delta, for example, then they may have value.

70. Plaintiff Expert Johnson indicates that many of the IRW soils are also high in available N, as is supported by the USDA map and data shown previously. [99] To the extent that available N in an IRW field meets economic or agronomic needs, nitrogen in poultry waste or commercial fertilizer also has no gross value on that field.

71. Widespread recognition of the problem of excess poultry waste in several areas of the U.S., including the IRW, has led researchers to consider a variety of alternatives to land application of waste in problem watersheds.[100] Alternatives include low phosphorus diets for poultry, amendments such as alum applied to the waste, composting for sale in urban areas, and both on-farm and large-scale burning. Although burning poultry waste is technically feasible, even on a small-scale, a University of Arkansas study shows that technical improvements are required before

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[97] This also assumes that the law of diminishing returns applies to crop and pasture fertilization. Validity of this assumption has been verified by practically all fertilization experiments conducted for well over a century.

[98] See, for example, Martin and Zering, p. 50.

[99] Affidavit of Gordon V. Johnson, Nov. 8, 2007.

[100] Several alternatives are reviewed in Marc Ribaudo, Noel Gollehon, Marcel Aillery, Jonathan Kaplan, Robert Johansson, Jean Agapoff, Lee Christensen, Vince Breneman, and Mark Peters, Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land, USDA Economic Research Service Agricultural Economic Report Number 824, June 2003, pp 45-53.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA,	)	
	)	
Plaintiff,	)	
	)	
v.	)	**Case No. 05-cv-329-GKF(PJC)**
	)	
TYSON FOODS, INC., et al.,	)	
	)	
Defendants.	)	

DOCUMENTS FILED UNDER SEAL

EXHIBIT C –
PETERSON FARMS GROWER CONTRACTS

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel. W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,	)	
Plaintiff,	)	
vs.	)	**05-CV-0329 GKF-SAJ**
TYSON FOODS, INC., TYSON POULTRY, INC., TYSON CHICKEN, INC., COBB-VANTRESS, INC., AVIAGEN, INC., CAL-MAINE FOODS, INC., CAL-MAINE FARMS, INC., CARGILL, INC., CARGILL TURKEY PRODUCTION, LLC, GEORGE'S, INC., GEORGE'S FARMS, INC., PETERSON FARMS, INC., SIMMONS FOODS, INC., and WILLOW BROOK FOODS, INC.,	)	
Defendants.	)	

SUPPLEMENTAL RESPONSES OF DEFENDANT, PETERSON FARMS, INC. TO STATE OF OKLAHOMA'S SEPTEMBER 13, 2007 SET OF INTERROGATORIES

Defendant, Peterson Farms, Inc. ("Peterson Farms"), submits the following Supplemental Responses to State of Oklahoma's September 13, 2007 Set of Interrogatories, pursuant to Federal Rules of Civil Procedure 26 and 33.

GENERAL OBJECTIONS:

1. Peterson Farms objects to, and does not agree to subject itself to, the arbitrary and extraordinary "definitions and instructions" described by the Plaintiffs to certain terms as set forth in their September 13, 2007 Set of Interrogatories propounded to All Defendants. To the extent that such terms appear in the Interrogatories and are in excess of the requirements of the

"poultry waste" in conformance with those laws, the manner and methods for the disposition of his/her "poultry waste" is a function of how the contract grower managed his/her farming operation, and is not a component of the formerly contracted activity, *i.e.*, raising and caring for the chickens. Hence the decisions each former contract grower made with regard to his/her "poultry waste" was a matter between him/her and the respective state regulatory authority that was not reported to or controlled by Peterson Farms. Peterson Farms also refers Plaintiffs to the deposition testimony of Ray Wear and Kirk Houtchens dated July 26, 2007.

Interrogatory No. 7: For each year since 1980, please state (a) the amount (in lbs., tons, or other standard of measure) of and (b) the percentage of the poultry waste generated by your poultry growing / feeding operations and poultry growing / feeding operations under contract with you that has been applied to land within the Illinois River Watershed as what you contend is a fertilizer, and identify the information upon which you have relied in making your answer.

Answer: Peterson Farms incorporates its objections and response to Interrogatory No. 6 as though fully re-stated herein. Subject to and without waiving the foregoing objection and its General Objections, Peterson Farms states it is not aware of any evidence demonstrating that any independent poultry grower formerly under contract with it in the IRW utilized his/her "poultry waste" in a manner inconsistent with his/her Nutrient Management Plan or state standards for land application. Accordingly, Peterson Farms' position is that all such land applications qualify as "fertilizer."

Interrogatory No. 8: Please identify each and every seminar, conference, workshop, symposium, meeting and/or task force since 1980 attended by or participated in by you or your employees that addressed (a) the land application of poultry waste (including any

constituents thereof), (b) the run-off / release / discharge of poultry waste (including any constituents thereof) from land on which it has been applied to the environment, and/or (c) the environmental and/or human health effects or dangers of the run-off / release / discharge of poultry waste (including any constituents thereof) from land on which it has been applied to the environment. A complete answer will include (i) the name, date and location of the seminar, conference, workshop, symposium, meeting and/or task force, (ii) the sponsor(s) or organizer(s) of the seminar, conference, workshop, symposium, meeting and/or task force, (iii) a detailed description of the topics covered by the seminar, conference, workshop, symposium, meeting and/or task force, (iv) the names of the presenters at the seminar, conference, workshop, symposium, meeting and/or task force, and (v) the name(s) of any attendees / participants from your company who attended or participated in the seminar, conference, workshop, symposium, meeting and/or task force.

Answer: Peterson Farms objects to this interrogatory as overly broad and burdensome as it encompasses a twenty-seven year span of time. It is impossible for Peterson Farms to identify all such events given that individuals who may have attended such events have departed the employ of Peterson Farms; the fact that someone attended some meeting or event is not necessarily a fact that would be made a part of Peterson Farms' business records; and because in accord with Peterson Farms' document retention policy, any documents reflecting such meetings and events at times outside of the prescribed retention period will likely have been destroyed in the normal course of business. Peterson Farms also objects to this interrogatory as it includes within its scope meetings, etc. that are protected from disclosure, and specifically incorporates its General Objection No. 3. Subject to and without waiving the foregoing objection and its General Objections, Peterson Farms states:

Former Peterson Farms employee, Kirk Houtchens attended one or more meetings of Governor Keating's Animal Waste Task Force in Oklahoma City, OK in the 1996 to 1997 time frame.

Former Peterson Farms employee Ron Mullican attended some meetings of the Eucha/Spavinaw work groups in the late 1990s.

Former Peterson Farms employees Dan Henderson and Kirk Houtchens attended a meeting with Tulsa Mayor Savage and members of the Tulsa Metropolitan Utility Authority in the late 1990s.

Former Peterson Farms employees Janet Wilkerson and Ron Mullican attended meetings in Siloam Springs, AR and Tulsa, OK with Jim Wimberly and H.L. Goodwin of the University of Arkansas in the 1999 to 2000 time frame regarding the development of poultry litter markets and a litter bank.

Former Peterson Farms employee Sam Andrews participated in a meeting with the Arkansas Governor's Task Force regarding best management practices and nitrogen issues in agriculture in the early 1990s.

Peterson Farms continues to research for information responsive to this interrogatory, and will supplement its answer if additional information is identified.

Interrogatory No. 9: Please state whether you are or ever have been a member of (a) Poultry Partners, (b) Poultry Federation, (c) Unites States Poultry & Egg Association, (d) National Chicken Council, (e) National Turkey Federation, (f) Southeastern Poultry & Egg Association, (g) National Broiler Council, and/or (h) Poultry Water Quality Consortium, and, if so, your years of membership and the names of your employees who represented you in the organization.

Answer: Peterson Farms objects to this interrogatory as the lack of any time limitation renders the interrogatory overly broad and burdensome, and incorporates its General Objection No. 7. Subject to and without waiving the foregoing objections and its General Objections, Peterson Farms states that is has not been a member of Poultry Partners, United States Poultry & Egg Association, National Turkey Federation, Southeastern Poultry & Egg Association, or the Poultry Water Quality Consortium.

The National Broiler Council changed its name to the National Chicken Council in 1999 Peterson Farms has determined that it was a member of the NBC/NCC in 1996 continuing to May 2003; however, it does not possess information to verify its membership at any earlier time. Peterson Farms resumed its membership in the NCC in February 2005, and continues as a member to the present with Blake Evans as its representative. Prior representatives to the NBC/NCC include former Peterson Farms employees Vic Evans and Dan Henderson.

Peterson Farms has determined that it was a member of the Poultry Federation in 1996; however, it does not possess information to verify its membership at any earlier time. Peterson Farms' membership in the Poultry Federation has been sporadic from 1996 to the present, but it is a current member. Peterson Farms' representatives to the Poultry Federation during the term of its membership include Blake Evans, and former employees Dennis Martin, Kerry Kinyon, Vic Evans and Dan Henderson.

Interrogatory No. 10: Do you presently have or have you had since 1980 any direct or indirect ownership interest in any entity that raises / feeds poultry or owns poultry in the Illinois River Watershed? If so, for each such entity please describe the interest in detail, including but not limited to the name of the entity, the nature of the interest in the entity, any other owners of the entity, the management structure and composition of the entity, the date

Objection No. 3. Further, to the extent the substance of the interrogatory is a matter to be addressed by experts designated by Peterson Farms, such information known to these experts will be disclosed in compliance with the Court's Case Management Order. Subject to and without waiving the foregoing objection and its General Objections, Peterson Farms is not aware of any non-privileged information responsive to this interrogatory other than the invasive testing performed by Plaintiffs on certain poultry growers' properties pursuant to subpoena.

Respectfully submitted,

By /s/ Philip D. Hixon
A. Scott McDaniel (Okla. Bar No. 16460) smcdaniel@mhla-law.com
Nicole M. Longwell (Okla. Bar No. 18771) nlongwell@mhla-law.com
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Appearing Pro Hac Vice
MITCHELL, WILLIAMS, SELIG,
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425 W. Capitol Ave., Suite 1800
Little Rock, Arkansas 72201
(501) 688-8800
COUNSEL FOR DEFENDANT
PETERSON FARMS, INC.

VERIFICATION

STATE OF ARKANSAS)
) ss.
COUNTY OF BENTON)

Blake Evans, being first duly sworn on oath, states that he is employed with Peterson Farms, Inc., that he does not have personal knowledge of all facts recited in the foregoing SUPPLEMENTAL RESPONSES OF DEFENDANT, PETERSON FARMS, INC. TO STATE OF OKLAHOMA'S SEPTEMBER 13, 2007 SET OF INTERROGATORIES, nor does any one current or former employee of Peterson Farms, Inc. have personal knowledge of all the facts recited in the foregoing answers, but that the information has been gathered by and from current and former employees of Peterson Farms, Inc.; that the responses are true to the best of his belief based on the information supplied by such employees. I am duly authorized to sign this Verification on behalf of Peterson Farms, Inc.; that I have read the answers to the foregoing Interrogatories and that said responses are true and correct to the best of my knowledge and belief, and that I have executed this Verification as my free and voluntary act and deed representing the same.

Blake Evans

Signed and sworn to before me on the 14th day of October, 2008 by Blake Evans.

Notary Public

My Commission Expires: January 22, 2018

In the matter of

State of Oklahoma, ex rel., A. Drew Edmondson in his capacity as Attorney General of the State of Oklahoma, and Oklahoma Secretary of the Environment, C. MILES TOLBERT, in his capacity as the Trustee for Natural Resources for the State of Oklahoma, Plaintiffs

v.

Tyson Foods, Tyson Poultry, Tyson Chicken, Inc., Cobb-Vantress, Inc., Aviagen, Inc., Cal-Maine Foods, Cal-Mane Farms, Inc. Cargill, Inc., Cargill Turkey Products, LLC, George's, Inc., George's Farms, Inc., Peterson Farms, Inc., Simmons Foods, Inc. and Willowbrook Foods, Inc., Defendants.

CASE NO. 05-CV-329- GFK-SAJ

in the United States District Court
for the Northern District of Oklahoma

Expert Report

of

J. Berton Fisher, Ph.D., CPG, RPG (TX #0201; MS#0301)
Lithochimeia, Inc.
110 West 7th Street, Suite 105
Tulsa, Oklahoma 74119
May 15, 2008

To be included in this computation, it was required that a poultry house be classed as "active" (or recently so, in the case of Willowbrook Farms) and that its responsible integrator (Defendant) was known. Inactive houses and houses for which an integrator (Defendant) had not been determined were not included in this computation. The results of this computation are given in Table 6. This estimate is conservative, other poultry waste production estimation approaches discussed in Dr. Engle's report, yield estimates that exceed 500,000 tons of annual poultry waste production within the Illinois River Watershed.[65] Thus currently, and for an appreciable time previously, the Defendants have produced substantial amounts of waste within the Illinois River Watershed.

Table 6.
Poultry Waste Production Within the Illinois River Watershed Estimated from a Consideration of the Total Area of Active Poultry Houses Operated by a Known Defendant

Defendant	Broiler	Breeder	Turkey	Pullet	Cornish	Hen	TOTAL	%
Cal-Maine		358		112		2,280	2,750	0.78%
Cargill		2,860	15,108				17,968	5.08%
Georges	49,813	5,911		2,489		1,888	60,101	16.98%
Peterson	35,063	491		277		1,311	37,143	10.49%
Simmons	58,724	5,757		1,818			66,299	18.73%
Tyson	129,421	18,593		7,735	9,874	1,521	167,144	47.22%
Willowbrook			2,597				2,597	0.73%
TOTAL	273,022	33,970	17,704	12,430	9,874	6,999	**354,000**	100%
%	77.12%	9.60%	5.00%	3.51%	2.79%	1.98%	100%	

9. Poultry waste is disposed by land application without incorporation (simple broadcast spreading). Based on my personal observations, the observations of investigators[66], deposition testimony[67], and technical publications[68], poultry waste is

65 Expert Report of Bernie Engle, 2008.
66 OK-PL-0004334 – 00058963; PI-Fisher 00025471 – 00025547; PI-Fisher00027362-PI-Fisher00027368.
67 Deposition of Tommy Daniel, Ph. D. November 26, 2007, Page 26 line 23-25; Page 27 line 1-23; Page 50 line 17-25; Page 51 line 1-16; Deposition of Michael Langley, November 7, 2007, page 24 lines 6-19; page 26 lines 2-19; Deposition of Bart Snyder, November 8, 2007, page 19 line 1-11; page 19 line 17-line 25; page 20 line 1.
68 Tyson Environmental Poultry Farm Management TSN0060CORP-TSN0118CORP Bell, D. D. and W. D.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel. W.A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA Plaintiffs, vs. 1. TYSON FOODS, INC., 2. TYSON POULTRY, INC., 3. TYSON CHICKEN, INC., 4. COBB-VANTRESS, INC., 5. AVIAGEN, INC., 6. CAL-MAINE FOODS, INC., 7. CAL-MAINE FARMS, INC., 8. CARGILL, INC., 9. CARGILL TURKEY PRODUCTION, LLC., 10. GEORGE'S, INC., 11. GEORGE'S FARMS, INC., 12. PETERSON FARMS, INC., 13. SIMMONS FOODS, INC., and 14. WILLOW BROOK FOODS, INC., Defendants.	)	Case No. 4:05-cv-00329-GKF-SAJ

EXPERT REPORT OF DR. CHRISTOPHER M. TEAF

Qualifications & Experience

1. My name is Dr. Christopher M. Teaf. I am over 18 years of age and am competent to testify. All opinions presented in this statement reflect personal knowledge based on information and data that I have reviewed in this case. All

19. Throughout the Oklahoma portion of the IRW, land use designation primarily falls into one of two categories: forest or pasture (EPA, 2001a). Urban impacts are minimal in the Oklahoma portion of the watershed, with only three permitted National Pollutant Discharge Elimination System (NPDES) locations present, coupled with low human population densities in the Oklahoma portion of the IRW (EPA, 2007b). All three of these locations are present either far down on the Illinois River (i.e., Tahlequah) or they are located on downstream tributaries (e.g., Baron Fork and Caney Creek). Their impacts are further limited due to the relatively low permitted discharge rates, ranging from 0.28 to 5.27 million gallons per day (MGD; Table B3). Sewage bypasses and overflows are not significant sources of contamination under normal conditions. The Waste Water Treatment Plant's (WWTPs) in the IRW are all separate sewage systems (SSS's) which do not combine untreated waste with stormwater runoff, thus should not be as heavily impacted by large rain events as a combined sewage system (CSS) would be. Finally, the permitted bacterial limits are restrictive, thus controlling the total amount of bacteria that can be released from the systems.

20. Contamination of surface water and groundwater supplies by bacteria has long been recognized as a human health concern in the United States and around the world. The 1986 U.S. EPA *Ambient Water Quality Criteria for Bacteria* provided historical context and recommendations concerning appropriate guidelines for microorganisms (U.S. EPA, 1986). Subsequent refinements and updates to that guidance are represented by the *Implementation Guidance for Ambient Water Quality Criteria for Bacteria* (U.S. EPA, 2003). This health-based guidance fits into the operable "fishable/swimmable" goals of the Clean Water Act, which specifically requires that water quality standards must "protect the public health and welfare, enhance the quality of water, and serve the purposes of this Act."

21. Microbiological contamination of water can be caused by bacteria, viruses, protozoa and other related organisms. The number and diversity of these potential contaminants has resulted in the development of practical assessment and protection strategies which employ "indicator organisms" as a surrogate for the quantification of specific species in water bodies (Barrell et al., 2000; U.S. EPA, 2003; National Research

Council, 2004). These indicator organisms, such as *Escherichia coli* (*E. coli*), enterococci, and fecal coliform bacteria, may not cause illness directly, but they have demonstrated characteristics which make them reliable indicators of other harmful pathogens in water (Wade, 2006). Although the most commonly reported illnesses associated with bathing in contaminated water typically are gastrointestinal in nature, other illnesses and conditions affecting the eyes, ears, skin and upper respiratory tract can occur as well. Essentially all local, state, and national health agencies employ one or more of the indicator organisms in their water quality management programs, and this is true internationally as well (WHO, 2000; EPA, 2003). Thus, there is consensus that the presence of these indicator organisms at levels greater than the health-based criteria or standards represents a human health threat.

22. The 2003 U.S. EPA *Implementation Guidance* cited previously, provided detailed information regarding the basis for the environment and health agency recommendations, including discussions on the epidemiology of microbiological disease related to water uses such as swimming, kayaking, water skiing, and other activities where direct contact and immersion in the water are likely. For *E. coli*, a geometric mean density of 126 organisms per 100 milliliters (ml) of water over a 30-day period was associated with an illness rate of 0.8%, or 8 illnesses per 1,000 recreational users. As a short-term measure, this 0.8% illness rate was associated with bacterial counts of 236 per 100 ml as an upper limit. For the enterococci, a geometric mean of 33 organisms per 100 ml and an upper limit of 62 organisms per 100 ml were associated with the 0.8% illness rate (OAC, 2007). Above these threshold levels, the agency noted that illness rates rise sharply, and the health-based recommendation seeks to remain below that part of the statistical curve (Figure B2). The State of Oklahoma, along with many other states, has adopted these indicator organism criteria as a fundamental element of their water quality criteria for protection of human health.

23. The exposures represented by recreational uses of the Illinois River and its tributaries, as described by Caneday (2008), both floating and non-floating, are consistent with the types of activities considered by the EPA (2003) in its estimates of illness rates of 8 per 1000 people (0.8%) for indicator organisms in fresh water. Using

the figures for intensive uses of the Illinois River Watershed provided by Caneday (2008), it is possible to estimate that over 1,200 illnesses are occurring on an annual basis even if the bacterial water quality is just being met. While states can determine their own disease incidence targets, the EPA (2003) recommends less than 1.0% illness rate (e.g., 0.8% is used by many states). This is in part because the epidemiological data illustrate an exponential increase in rates beyond the 1.0% illness incidence threshold, instead of a linear increase. Stated differently, at low indicator organism densities (i.e. below the health-based recommendation) the pattern of increase in illness is fairly small and the line is flat, while at higher indicator organisms densities, the illness rate curve rises much more steeply (Figure B2).

24. Primary Body Contact Recreation (PBCR) is an exposure category defined by the State of Oklahoma Administrative Code in Title 785, Chapter 45 (OAC, 2007). This beneficial use category is specifically intended to protect recreational users of water bodies from contamination during the recreational season of May 1 through September 30. PBCR is defined as involving direct body contact (i.e., the dermal exposure route) with surface water through activities such as swimming, wading, canoeing, and fishing. It should be noted that PBCR also explicitly includes the additional likelihood of incidental water ingestion (i.e., oral exposure route) while recreation is occurring in the watershed through multiple activities (OAC, 2007). In water bodies that are governed by the PBCR requirements, the State of Oklahoma mandates that such water "shall not contain chemical, physical or biological substances in concentrations that are irritating to skin or sense organs or are toxic or cause illness upon ingestion by human beings" (OAC, 2007). Clearly, levels of bacteria and indicator organisms that exceed health-based criteria and other standards will and do pose such an unacceptable health risk to users of the Illinois River and its tributaries.

25. Information that is available regarding land disposal of poultry waste shows that nearly two-thirds (over 63%) of waste spreading occurs in the months of February through June (Figure B3), based upon data for the period 1999-2004 (Fisher, 2008; Engel, 2008). Information available regarding the pattern of a major PBCR use ("floating") within the Illinois River and its tributaries in the 2004-2007 period by month shows that

taken from field runoff immediately after poultry waste application (Olsen, 2008). In addition, the maximum levels for *E. coli*, enterococci and fecal coliform found in poultry litter/waste samples collected by CDM in 2006 were 120,000 MPN per gram of litter (CDM, 2008). Other impacted media include sediments and soils as demonstrated by Fisher (2008) and Olsen (2008).

30. In addition to the numerical comparisons between health-based criteria and detected levels of bacteria and indicator organisms as a measure of potential health hazard, it is useful to consider the relative importance of microbial sources in the IRW as well. Processes to accomplish this have been developed by USEPA and a number of individual states, including Oklahoma, under the Total Maximum Daily Load (TMDL) program (USEPA, 1997; USEPA, 2001b; ODEQ, undated).

31. An analysis of potential sources for fecal coliforms was conducted in a fashion consistent with that employed by USEPA and ODEQ for the six counties which share some portion of the Illinois River Watershed (Adair, Cherokee, Delaware and Sequoyah in OK; Benton, Washington in AR). That analysis considered fecal coliform contributions by a variety of categories for which data were available, including: domestic pets, deer/wildlife, failing septic systems, permitted point sources (i.e., NPDES outfalls), and livestock. The livestock category was further subdivided into groups by poultry, cattle/calves, horses/ponies, sheep/lambs, and swine. Table B4 summarizes the contributions for each source category, and also provides a summary of the relative contribution from the five livestock categories. The numerical values for each category are expressed in units of Colony Forming Units per day (CFU/day). For example, the total fecal coliform load from poultry and from cattle/calves is approximately 5×10^{15} CFU/day, or 5,000 trillion CFU/day each. Table B5 provides the underlying summary calculations and input parameters for the values presented on Table B4.

32. Several important conclusions can be drawn from this source contribution analysis, including the following:

- The categories of domestic pets, deer/wildlife, failing septic systems and point sources each contribute from 0.01% to 0.9% of total fecal coliform loading. Those contributions are not significant in comparison to the contribution from livestock;
- The livestock category alone contributes nearly 99% of total fecal coliform loading;
- Within the livestock category, poultry and cattle/calves each contribute just over 40% each of the total, swine contribute about 14% of the total, sheep/lambs contribute about 0.1% of the total, and horses/ponies contribute about 0.03% of total fecal coliform loading;

In addition, leachability of poultry waste was on the order of 1 to 5 times higher than fresh cattle manure, and is likely to be even greater for dry manure based on the smaller particle sizes present in poultry waste (Olsen, 2008). Therefore, poultry waste is much more likely to leach components with the potential for adverse impacts from the site of application to nearby water sources, than is cattle manure.

33. For over a decade, the practice of adding antibiotics (e.g., fluoroquinolones, tetracyclines, aminoglycosides, macrolides) to farm feed has been widely used to fight microbial infection in poultry and other livestock, as well as sub-therapeutically to increase feed conversion efficiency and weight gain (Nandi et al., 2004; PCIFAP, 2008). Concern has been raised about the ability of bacteria such as *E. coli*, *Salmonella*, *Campylobacter*, and *Staphylococcus*, which are common in poultry, to become antibiotic-resistant, thereby representing a source of infection in humans as a result of this widespread antibiotic use in farming (White et al., 2003; USFDA, 2002; Nandi et al., 2004; Hurd et al, 2004; Diarra et al., 2007; Dupont, 2007; Smith et al., 2007; PCIFAP, 2008). Price et al. (2007) reported that individuals who work in the poultry industry were much more likely to carry antibiotic resistant strains of *E. coli* than other members of the community. According to the World Health Organization, the "use of antimicrobials outside of human use is of serious concern given the alarming emergence of bacteria, which have acquired, through this use, resistance to antimicrobials" (WHO, 2008a). These concerns ultimately led the European Community to prohibit the use of antibiotics as growth promoters. Antibiotics used by the poultry industry, including defendants in this case, to treat or control bacterial diseases include: Baytril

(enrofloxacin), Sarafloxacin, Bacitracin (BMD), Penicillin (e.g., Ampicillin, Amoxicillin, Methicillin), Gentamycin sulfate, and tetracyclines (e.g., chlortetracycline (CTC), neo-terramycin, oxytetracycline), among others (see e.g., Bates #: TSN088218SOK, TSN088077SOK, TSN088197SOK, CM003570, SIM AG09496, CARTP109186). In addition to antibiotics, pesticides (e.g., Larvadex, Fenbendazole, Piperazine, Levamasol) are also added to feed to control worms and fly larvae (see e.g., Bates #: CM003473, CARTP169958, CARTP143292, CARTP158787), and thus would be present in excreted poultry waste. This information clearly illustrates that a number of significant pathogens are a recognized and inherent health concern associated with poultry raising operations, and that the industry historically has actively treated the flocks to control these very bacteria in poultry waste which are potentially dangerous to the flocks.

34. It is evident that the poultry industry is and has been aware for some time of the potential health problems that these pathogens represent due to the widespread use of the veterinary antibiotics (see previous paragraph). Before the use of fluoroquinolones became common in animal husbandry (including poultry), antibiotic-resistant bacterial strains were virtually nonexistent (Bren, 2001; WHO, 2008b). In reference to the benefit of fluoroquinolone use being compromised, Hofacre et al. (1999) noted that the "Use of antibiotics in both humans and animals contributes to the selection pressure resulting in this resistance". *Campylobacter* from 28% of human patients in one study showed resistance to fluoroquinolones (Ellis-Pegler et al., 1995). In one particular case, *Salmonella minnesota* and *E. coli,* isolated from a number of turkey poults, were subjected to an antibiotic susceptibility pattern test. In that analysis, *E. coli* showed resistance to 13 of the 16 antibiotics tested and *S. minnesota* showed resistance to 10 of the 16 antibiotics tested (University of Missouri Veterinary Lab, 2007). It appears that the turkeys in question must have been subjected to numerous antibiotics in feeding operations, judging by their resistance to such a broad list of antibiotics. However, this particular case simply further illustrates what White et al. (2000) previously had demonstrated: that antibiotic-resistance is and has been on the rise. *Campylobacter* have been shown elsewhere to be broadly resistant to macrolide antibiotics (Bolenger and Shryock, 2007). In their study, White et al. (2000) showed avian (poultry) pathogenic *E.*

coli (APEC) resistance to Sarafloxacin increased from 15% in 1996 to 40% in 1999 and dual-resistance to Sarafloxacin and to Enrofloxacin increased from 9% in 1997 to 30% in 1999. To further illustrate the growth of multi-antibiotic resistance over time, three separate studies performed by Bass et al. (1999), White et al. (2000), and Zhao et al. (2005) published APEC results of 64%, 66%, and 71% of samples, respectively, having resistance to five or more antibiotics. With respect to individual antibiotics, the same three studies demonstrated that the use of tetracyclines has become so extensive that APEC-resistant strains ranged from 85 to 89% of bacteria, while Gentamycin resistance is in the range of 62 to 69% of APEC strains. Therefore, the spreading of poultry waste material clearly aids in the dispersion of antibiotic resistance in the environment, creating imminent and substantial endangerment to those using the river, as well as contributing to this recognized worldwide problem of antibiotic resistance.

35. Land spreading of poultry waste has long been recognized as a major bacterial contamination source (Crane et al., 1980; Adamski, 1987; Adamski and Steele, 1988; PCIFAP, 2008). Spreading of waste material, a traditional agricultural waste disposal practice, becomes a major source of contamination because frequently it exceeds the rate at which wastes can be accommodated by or processed in agricultural ecosystems (Coyne and Blevins, 1995). Rainfall, specifically when it occurs shortly after land spreading, may then result in pathogen distribution by runoff from spread poultry waste or by leaching through the soil profile (Giddens and Barnett, 1980; Gagliardi and Karns, 2000; Fisher, 2008; Olsen, 2008), even if buffer zones are used correctly, which they frequently are not. This is rendered even more important by the fact that the recreational season for the IRW overlaps with and immediately follows the rainy season, a period which is well within the survivability duration of the bacteria in question (Figure B4). Furthermore, the leachability of poultry waste components into groundwater significantly outweighs that of cow manure (Olsen, 2008). The environmental survivability of bacteria can be on the order of several days to many months (Jamieson et. al., 2002; Tetra Tech, 2004; Davis et al. 2005). Runoff from waste-spread fields carries excess nutrients, pollutants, and pathogens to nearby waterways, which negatively affects surface water, groundwater, aquatic life, and human health;

even months after land application of waste, fecal coliforms and *E. coli* can be resuspended from sediments and transported downstream (Coyne and Blevins, 1995; Hartel et al., 2000; Davis et al., 2005; Ringbauer et al., 2006).

36. Bacteria of human health significance, including *Campylobacter, Salmonella, Staphylococcus, Escherichia coli* and other important species, as well as bacterial indicator organisms such as fecal coliforms and enterococci, are present in poultry waste (Kelley et al., 1995; Jenkins et al., 2006; CDM, 2008; PCIFAP, 2008). The presence of microbial indicator organisms in surface and groundwater bodies suggests that other dangerous bacteria such as *Campylobacter, Salmonella* and/or *Staphylococcus* also may be present, in addition to ancillary viruses and protozoa that are more difficult to monitor (e.g., Cryptosporidium).

37. *Campylobacter* is a common intestinal bacterium found in a wide range of poultry, domestic livestock, and wildlife (Neill et al., 1984; Lindblom et al., 1986; Kazwala et al., 1990; Waage et al., 1999; Chen et al., 2006; Doyle and Erickson, 2006), though it is quite commonly associated with poultry operations and products globally (Hald et al., 2007), and it is more prevalent in poultry than in swine or cattle (Belanger and Shryock, 2007). While often referred to primarily as a foodborne illness, *Campylobacter* may be waterborne as well (Allos, 2001; O'Reilly et al., 2007). The major effects and complications of *Campylobacter* infection can occur in or near the gastrointestinal tract (USDA, 1991; Allos, 2001; Murray et al., 2003); however enteric (intestinal) diseases are not the only cause for concern. Human campylobacteriosis frequently presents as a sporadic infection, such that it is common to find individual cases in contrast to related outbreaks affecting a large group (Friedman et al., 2000). This sporadic occurrence pattern and the frequently self-limiting nature of the infection causes campylobacteriosis, as well as other enteric diseases that are transmitted by the waterborne route, often to be underreported to public health agencies (Belanger and Shryock, 2007; Leclerc, 2002). Even when diagnosed, campylobacteriosis is reported infrequently (Allos, 2001), and Mead et al. (1999) concluded that less that 3% of diagnosed *Campylobacter* gastroenteritis cases are reported to health authorities.

Steve Thompson
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

Brad Henry
Governor

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC NOTICE

July 14, 2009

AVAILABILITY OF DRAFT BACTERIA TMDL FOR THE SALT CREEK AND SAND CREEK AREAS OF THE UPPER ARKANSAS SUB-BASIN

- **REQUEST FOR PUBLIC COMMENTS**

Public Comment Period Ends: August 28, 2009

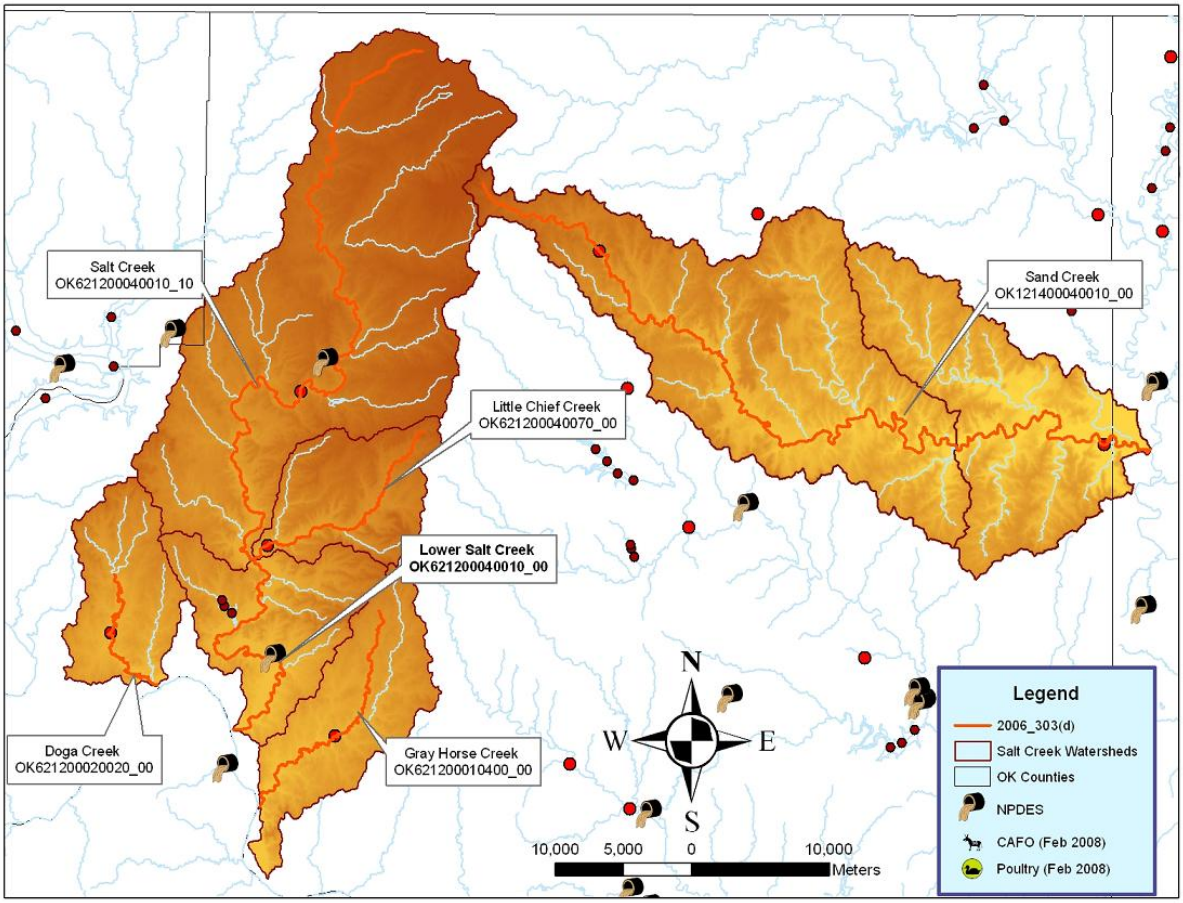
The Oklahoma Department of Environmental Quality (DEQ) is seeking comments on a draft document describing reductions needed to reduce disease-causing bacteria (pathogenic bacteria). Reductions in these bacteria will improve water quality in the Salt Creek areas of the Black Bear-Red Rock watershed (USGS HUC 11060006) and Sand Creek areas of the Caney River watershed (USGS HUC 11070106) in the Upper Arkansas Sub-Basin.

The federal Clean Water Act requires DEQ to develop plans with goals and pollution control targets for improving water quality where minimum standards are not met. This is accomplished by establishing limits known as Total Maximum Daily Loads (TMDLs) for each pollutant exceeding the standards. TMDLs set levels for pollutants that allow water bodies to achieve their beneficial uses. Beneficial uses include water for drinking, recreation, aesthetics, irrigation, fishing, and swimming.

The TMDL study in the Salt Creek and Sand Creek areas focused on six waterbodies that DEQ placed in Category 5 of the 2008 Integrated Report [303(d) list] for nonsupport of primary body contact recreation (PBCR). These six waterbodies are:

- Salt Creek (OK621200040010_00)
- Salt Creek (OK621200040010_10)
- Little Chief Creek (OK621200040070_00)
- Gray Horse Creek (OK621200010400_00)
- Doga Creek (OK621200020020_00)
- Sand Creek (OK121400040010_00)

Almost all of the waters in the Salt Creek and Sand Creek areas included in the TMDL study are located in Osage County in northern Oklahoma.



Study:

From 1999 to 2007, water samples were collected from 10 Water Quality Monitoring (WQM) stations between May 1st and September 30th (basically swimming season). These water samples were analyzed for specific bacterial organisms. The primary body contact recreation beneficial use of the Salt Creek/Sand Creek areas were evaluated for excess pathogens.

The Oklahoma Water Quality Standards (Chapter 46: 785:46-15-6)[1] stipulate how water quality data will be assessed to determine support of the PBCR use as well as how the water quality target for TMDLs will be defined for each bacterial indicator. These pathogenic bacteria include fecal coliform bacteria, Escherichia coli (E. coli), and Enterococci. These pathogenic bacteria are found in the intestines of humans and animals and may get into streams as a result of the overflow of domestic sewage or nonpoint sources of human and animal waste.

Water samples from these areas were analyzed to determine if there were violations of water quality standards in respect to these pathogens. Gray Horse Creek, Doga Creek, and Sand Creek were found to be in violation for all three of the bacteria. Salt Creek was found to be in violation for Enterococci. There is not enough data in Little Chief Creek to assess the PBCR uses for Enterococci or E. coli, but it was found to support its PBCR beneficial use for fecal coliform. (See the following table.)

1 OWRB, http://www.owrb.ok.gov/util/rules/pdf_rul/2008_adopted/Chap46_2008.pdf, page 23.

Waterbodies Requiring TMDLs for Not Supporting Primary Body Contact Recreation Use

WQM Station	Waterbody ID	Waterbody Name	Indicator Bacteria		
			FC	ENT	*EC*
OK621200-04-0010F	OK621200040010_00	Salt Creek		X	
OK621200-04-0010J OK621200-04-0010P	OK621200040010_10	Salt Creek		X	
OK621200-04-0070C	OK621200040070_00	Little Chief Creek			
OK621200-01-0400C OK621200-01-0400T	OK621200010400_00	Gray Horse Creek	X	X	X
OK621200-02-0020C OK621200-02-0020M	OK621200020020_00	Doga Creek	X	X	X
OK121400-04-0010F OK121400-04-0010T	OK121400040010_00	Sand Creek	X	X	X

Report:

A TMDL document uses scientific data collection and analysis to determine the amount and source of each pollutant entering the system, and allocates pollutant loads to each source at levels that would ultimately restore water quality to meet clean water standards. A TMDL is the amount of each pollutant a waterway can receive and not violate water quality standards. A TMDL takes into account the pollution from all sources.

An important part of TMDL analysis is the identification of individual sources of pollutants in the watershed that affect pathogen loading and the amount of loading contributed by each of these sources. Under the Clean Water Act, sources are classified as either point or nonpoint sources. The National Pollutant Discharge Elimination System (NPDES) program regulates point source discharges. A point source is described as a discernable, confined, and discrete conveyance from which pollutants are or may be discharged to surface waters. Nonpoint source pollution (NPS) has such widespread sources that they cannot be identified as entering a waterbody at a single location.

Point Sources

Point source discharges can be described by three broad subcategories: 1) NPDES regulated municipal and industrial wastewater treatment facilities (WWTF); 2) NPDES regulated industrial and municipal storm water discharges; and 3) NPDES regulated Concentrated Animal Feeding Operations (CAFOs). A TMDL must provide Waste Load Allocations (WLAs) for all NPDES regulated point sources. For the purposes of this TMDL, all sources of pollutant loading not regulated by NPDES permits are considered nonpoint sources. The TMDL must provide a Load Allocation (LA) for these sources.

Most municipal and industrial wastewater treatment facilities that could be point sources of pathogenic bacteria already have permit limits equal to the water quality standard and do not contribute to the impairment. There are two permitted point source dischargers into upper and

lower Salt Creek. There are no point source discharges into the other waterbodies. The point source dischargers into Salt Creek are wastewater treatment plants for the City of Shidler and the Fairfax Public Works Authority (PWA). These facilities utilize lagoons for treatment and have not been required to provide disinfection previously since storage time and exposure to ultraviolet radiation from sunlight should reduce bacteria levels. In the future, all point source dischargers which are assigned a wasteload allocation but do not currently have a bacteria limit in their permit will receive a permit limit consistent with the wasteload allocation as their permits are reissued. This will apply to Shidler and Fairfax. In the Salt Creek and Sand Creek areas, there were no facilities with NPDES permitted stormwater runoff or NPDES permitted CAFOs.

Sanitary sewer overflows (SSO) from wastewater collection systems, although infrequent, can be a major source of harmful bacteria into streams. SSOs have existed since the introduction of separate sanitary sewers, and most overflows are caused by blockage of sewer pipes by grease, tree roots, and other debris that clog sewer lines; by sewer line breaks and leaks; by cross connections with storm sewers; and by inflow and infiltration of groundwater into sanitary sewers. While not all sewer overflows are reported, in the Salt Creek and Sand Creek areas there were 8 known SSO occurrences in the City of Shidler between the years1998 and 2008.

Non-Point Sources

Most of the bacterial pollution in the Salt Creek and Sand Creek areas comes from non-point sources. Nonpoint sources of pollutants are typically separated into urban and rural categories. Surface storm runoff is an important source of loading in urban or residential settings with high amounts of paved impervious area. In rural settings, the sources of pathogenic bacteria may include runoff of applied manure to agricultural land, runoff of animal wastes associated with the erosion of sediments in grazing fields, contributions from wildlife, and failing septic tanks. Some examples include:

- **Wildlife** – Pathogenic bacteria are produced by all warm-blooded animals, including birds. Wildlife is naturally attracted to riparian corridors of streams and rivers. With direct access to the stream channel, wildlife can be a concentrated source of bacteria loading to a waterbody. Pathogenic bacteria from wildlife are also deposited onto land surfaces, where it may be washed into nearby streams by rainfall runoff.

  Currently there are insufficient data available to estimate populations and spatial distribution of wildlife and avian species by watershed. Consequently it is difficult to assess the magnitude of bacteria contributions from wildlife species as a general category. However, adequate data are available by county to estimate the number of deer by watershed.

  In the Salt Creek and Sand Creek bacterially impaired areas, there are about 533 deer. This is an average deer per acre rate of only about 0.001 deer per acre. At these concentrations, wildlife is considered to be a minor contributor of bacteria in the areas.

- **Agricultural animals** - Agricultural livestock grazing in pastures deposit manure containing bacteria onto land surfaces. Examples of livestock activities that can contribute to bacteria sources include:

- Processed manure from livestock operations such as poultry facilities: This manure is often applied to fields as fertilizer and can contribute to fecal bacteria loading to waterbodies if washed into streams by runoff.

- Livestock grazing in pastures: Livestock deposit manure containing fecal bacteria onto land surfaces. These bacteria may be washed into waterbodies by runoff.

- Direct access to waterbodies by livestock: Livestock standing in or crossing streams can provide a direct concentrated source of fecal bacteria into the streams.

In the Salt Creek and Sand Creek areas, cattle (an estimated 43,867 head near the bacterially-impaired streams) generate the largest amount of pathogenic bacteria and often have direct access to streams and tributaries. (Refer to the full TMDL report for the estimated number of all agricultural animals as well as their daily pathogenic bacteria production rates.)

- **Failing Septic Systems** – If a septic system is not working properly, then raw sewage - a concentrated source of bacteria - can go directly to streams. Bacteria loading from failing septic systems can be transported to streams in a variety of ways, including runoff from surface ponding or through groundwater. Bacteria-contaminated groundwater can also enter creeks through springs and seeps. It is estimated that there are 133 failing septic systems in the bacterially-impaired Salt Creek and Sand Creek areas. Refer to the full TMDL reports on how these numbers were calculated.

- **Pets** - Pathogenic bacteria from dogs and cats can be transported to streams by runoff from urban and suburban areas. On average nationally, there are 0.58 dogs per household and 0.66 cats per household [American Veterinary Medical Association (2004)]. This means there are probably about 1,975 dogs and 2,248 cats in the Salt Creek and Sand Creek areas. Given this sparse population density, domestic pets are not considered to be a major source of bacteria in these areas.

Conclusions and Recommendations

The Salt Creek and Sand Creek areas are in violation of Oklahoma Water Quality Standards with respect to pathogens, with the exception of Little Chief Creek. Most of the pathogens come from nonpoint sources though it is not known which sources these are specifically from without additional study. The health effects of pathogens should be a concern for the public who use these waterways for activities such as swimming, wading, or boating. This is because some waterborne pathogenic bacteria can cause serious human illness or disease.

In order to meet water quality standards for swimming (Primary Body Contact Recreation), the levels of pathogenic bacteria must be reduced by the following amounts:

TMDL Percent Reductions Required to Meet Water Quality Standards for Impaired Waterbodies in the Salt Creek & Sand Creek Study Areas

WQM Station	Waterbody ID	Waterbody Name	Percent Reduction Required				
			FC	EC		ENT	
			Instant-aneous	Instant-aneous	Geo-mean	Instant-aneous	Geo-mean
OK621200-04-0010F	OK621200040010_00	Salt Creek				97%	**67%**
OK621200-04-0010J OK621200-04-0010P	OK621200040010_10	Salt Creek				97%	**79%**
OK621200-01-0400C OK621200-01-0400T	OK621200010400_00	Gray Horse Creek	**81%**	84%	**38%**	93%	**76%**
OK621200-02-0020C OK621200-02-0020M	OK621200020020_00	Doga Creek	**61%**	78%	**48%**	87%	**76%**
OK121400-04-0010F OK121400-04-0010T	OK121400040010_00	Sand Creek	**41%**	97%	**12%**	99%	**80%**

Providing comments

The comment period will be open for 45 days. If you have any concerns regarding these proposed limits, please submit your comments in writing to:

Dr. Karen Miles
Water Quality Division
Oklahoma Department of Environmental Quality
P.O. Box 1677
Oklahoma City, OK 73101-1677
(405) 702-8192
E-mail: Karen.Miles@deq.ok.gov

Comments must be received by close of business on August 28, 2009.

You may also request a public meeting in writing. If there is a significant degree of interest, the Department of Environmental Quality will schedule a public meeting. After evaluating comments received and making any necessary changes, the modification will be submitted to EPA for final approval. The final results of the TMDL will be incorporated into Oklahoma's Water Quality Management Plan.

Obtaining copies

You may view the study this TMDL was based on by going to the DEQ website at: http://www.deq.state.ok.us/WQDnew/index.htm

Or

Pick up copies of the studies at the DEQ office, Water Quality Division, 707 North Robinson, Oklahoma City from 7:30 am – 5:00 pm. A document copying fee may apply.

INTEROFFICE MEMORANDUM

To: Dan Henderson

CC: Vic Evans , Janet Wilkerson

From: Ron Mullikin

Date: March 27, 1998

Subject: Opinions on the Poultry Litter Issues

Dan,

In the past few months I have been exposed to a wealth of information and individuals in the poultry industry. I would like to share with you some of my views of where we are, and where we may be headed, on the poultry litter issue.

I personally have no opinion on whether or not the intergrator or the grower owns the litter. I do feel, without any doubt, that as time passes, we the intergrator will be found to be liable for it and the affect it has on our environment. This position will be driven by both environmental groups and the EPA.

Increases in regulation , by a number of federal, state and local agencies, will continually increase on the poultry producers. Unfortunately, too many of these regulations are being driven by political ambition. We have VP Gore, leading the fight to clean the nations waterways, and at the same time lead the fight to become our next president. Knowing full well, no one will be able to fight his environmental record. We have the mayor of Tulsa, who would like to be the Gov. of OK.. Politics will continue to drive this issue.

We are also faced with a lack of science to help us understand where we are, and where we need to go. Agronomists can't agree on the movement of phosphate, the water solubility of the P in the litter, and means of making P more efficient in our feeds. How much P in our soils is too much? Agencies can't agree on max. soil levels.

FROM THE DESK OF...

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